FACTORS THAT INFLUENCE HEALTH SERVICES UTILIZATION FOR EMOTIONAL OR MENTAL HEALTH REASONS AMONG UNIVERSITY STUDENTS

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By

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ABSTRACT

The purpose of this study was to determine the factors that influence university students' use of health services for mental or emotional reasons. Currently accepted models of health service use may not apply to university students due to their unique socio-demographic characteristics and health challenges. The Andersen and Newman model of health service utilization was used as a conceptual framework. The first hypothesis was that many factors that influence use of services in the general population would also apply to the university student population. The second hypothesis was that some student-specific factors would also influence health service utilization for mental or emotional reasons.

Data for this study was collected in a survey designed for a larger health needs assessment of University of Saskatchewan undergraduate students. The dependant variable was the use of services for mental or emotional reasons within the past year. Information was also collected for 26 independent variables. A logistic regression was used to determine which of these were related to the dependant variable.

The final model of health service utilization for mental/emotional reasons among university students included six independent variables: 1) perceived need for professional help (for emotional problems), 2) previous depression diagnosis, 3) past/present suicide ideation, 4) sexual assault victimization, 5) presence of a family doctor, and 6) gender.

The results of this study indicate that many of the factors that influence service use for mental/emotional reasons in the student population are the same as those that exist in the general population. The results also suggest that student-specific factors,

such as college, years in university, or academic performance do not influence health service use for mental/emotional reasons. Implications of these findings are discussed.

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And to my family… you've each been absolutely instrumental to this process. I love you all very much.

DEDICATION

I dedicate this thesis to my new husband, Darcy. Thanks hon… for everything.

Love you.

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1. INTRODUCTION

1.1 General Background

University students face numerous potential stresses and strains. In addition to meeting academic expectations and coping with the many life changes which typically mark the transition from adolescence to adulthood, the strains that university students currently face may be different and/or more frequent than in previous generations. For example, rising tuition costs may be a source of additional stress. Evidence also suggests that the number of diverse life choices that exist during the transition from adolescence to adulthood in modern society has resulted in the achievement of adult independence being more complicated than ever.[1] As well, the prospects for finding a job at the end of an academic endeavor may be less certain compared to previous generations of students. Certainly, the pressure to gain any type of university education is more profound than it has ever been. The emergence of relatively new health concerns such as AIDS and other sexually transmitted infections, also present new challenges to university students.

Limited evidence does suggest an increase over the last decade in reported cases of stress related emotional problems[2-5] and psychopathologies[6] among university students. For example, a 1995 commentary published in the Canadian Medical Association Journal, reported an increase of visits for the treatment of stress from 606 in 1990-91 to 863 in 1992 at the University of Toronto. It was also stated that the numbers have continued to increase since then. As a response to the commentary, the associate

director of Student Health Services at Queen's University expressed his emphatic agreement with the increasing importance of mental health services, stating that the number of visits to their psychiatric services increased dramatically from 853 in 1980-81 to 3279 visits in 1990-91, and again to 5907 visits in 1994-95.[4] He also referred to an increase in the proportion of students who take psychiatric medications, from 27% in 1981 to 52% in 1991.

In addition to an apparent increase in frequency of stress-related problems, university health officials also believe that mental health problems among students may be becoming more severe.[5, 7, 8] That is, in addition to the minor stresses during the exam period, students are experiencing stress over issues such as finances, unwanted pregnancies, eating disorders, sexually transmitted infections (STI's), career uncertainties, relationship difficulties, and suicidal ideation. As a specific example, the University of Western Ontario reports several first time cases of schizophrenia and several patients presenting with depression of varying severity.[5]

These perceived changes in student needs, along with the knowledge that suicide is the second leading cause of death among university aged Canadians[9], have led many universities to increase the mental health component of their services. For example, the University of Calgary recently changed the psychiatric component of their program from one day a week to covering four days a week.[5] Other university counseling centers have responded by hiring professional staff members that are more experienced in crisis work and able to handle more severe psychological problems.[8]

1.2 Study Rationale

Although awareness that university students are exposed to a wide range of difficulties that may affect their mental health is increasing, little research has

systematically documented the mental and emotional health challenges currently faced by university student populations. Moreover, the factors that influence university students' decision to seek professional care for these challenges are relatively unknown. Given research suggesting that only about fifty percent of university students see the doctor during the course of the academic year, and that students may be more likely than the general population to either avoid or delay seeking help for health problems,[10] it is likely that many students may be missing out on services or information they may require. It is for these reasons that utilization patterns among this particular population should be of interest to both researchers and health care providers alike.

Although current models of health care utilization (e.g. Andersen and Newman, 1979) can help us to understand the needs and behaviors of the student population, several reasons suggest that university students may not fit these general models. First, students are a relatively young population, and therefore may face a number of distinctive health challenges. Second, the unique organization of campus health facilities may result in certain types of professionals and services being more difficult to access. Third, the university population may hold some cohort-specific beliefs and attitudes about mental health and what constitutes a valid reason to seek professional services. These factors may result in differing patterns and predictors of utilization compared to the general population. Lastly, given that late adolescence and young adulthood are often life stages marked with experimentation in risk behaviors, such as unprotected sex, and drug and alcohol use,[1] it is difficult to distinguish between problem-behaviors and behaviors that may represent normal developmental adjustments. This, along with the factors listed above, suggest the utility of developing a mental health service utilization model specific to university students.

1.3 Study Objective

The purpose of the present study was to develop a model of mental health-related service utilization specific to university students. Two specific hypotheses were tested:

1. Characteristics found to be related to service utilization in general population samples, such as perceived need for services, will also be associated with students' health service use for mental or emotional reasons.
2. Characteristics more specific to university students, such as career uncertainty, low grades, stress over student loans, and college will be associated with students' health service use for mental or emotional reasons.

2. LITERATURE REVIEW

This section begins with a brief discussion regarding the possible theoretical frameworks that could describe health service utilization for mental/emotional reasons. An overview of the specific conceptual framework guiding this study is then presented, followed by a more detailed literature review of the key components of the framework and its applicability to student populations.

2.1 Theoretical models

There are several psychological models of behavior that could be applied to health care utilization for mental or emotional reasons. For example, based on the premise that using health services is a behavior, social learning theory would attribute using health services to external social forces rather than inherent individual preferences.[11] Attachment theory, which proposes that early childhood experiences with caregivers shapes an individual's perceptions and behaviors within their interpersonal relationships, is another theory that has also recently been used to understand health service utilization.[12] Specifically, individuals with certain types of insecure attachment styles may be more likely to report physical symptoms and visit a primary care giver.

However, behavior is only one of many factors that influence health care utilization. There are also societal determinants and influences from the health care system that play a role in determining service utilization. One model that accounts for these factors is the Andersen and Newman model of health service utilization,[13] which

over the last three decades, has been used almost exclusively in the literature to conceptually organize the factors that influence the utilization of health services.

2.2 Andersen and Newman Framework

The present study is based on Andersen and Newman's model of health service utilization.[13] A conceptual representation of this model is illustrated in figure 2.1. According to this framework, the factors that influence health service use can be classified into one of three broad categories: societal, health system, and individual. Societal determinants are comprised mainly of technology (the principles and tools used to bring about change), and norms (ways or modes in which members of society comply). The health system includes health related services and goods, such as physician care, hospital care, dental care, and drugs.

The third category of Andersen and Newman's model, individual determinants, has received the most research attention. *Need factors*, such as perceived health status, illness level or established diagnoses, are among the most important factors in determining whether a person seeks help.[14] E*nabling factors* are family or community level characteristics that facilitate or inhibit the ease in which help is obtained. Examples of enabling factors include income level, health insurance, community resources, accessibility, time constraints, and/or proximity to help.

P*redisposing factors* are socio-demographic characteristics, such as age, gender, social class and race, which are thought to influence a person's propensity to use services before the need for those services is present.

Critics of Andersen and Newman assert that social and psychological factors are not given enough emphasis in the model.[15, 16] For example, Antonovsky,[15] stresses the importance of socio-cultural pressures to seek diagnosis, the structure of medical

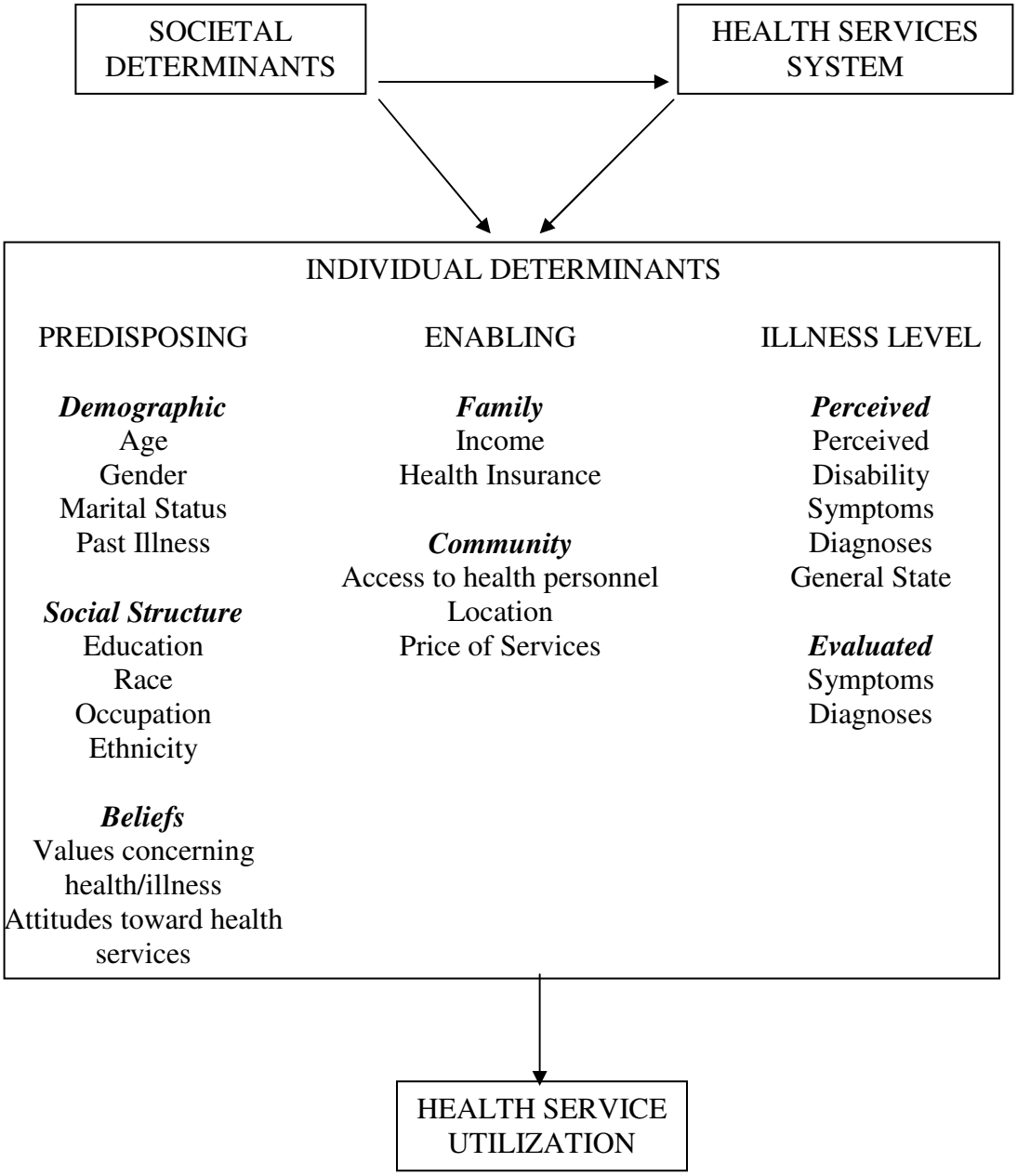


Figure 2.1 - Andersen and Newman Model of Health Care Utilization.

facilities, and attitudes towards health professionals.[17] Gortmaker et al.[16] contend that the Andersen model does not include stress as a specific component. Using a sample comprised of women and children, Gortmaker's research specifically assessed the influence of stress, independent of other known determinants. Their findings, in

combination with other findings,[18] indicated that stress may be a particularly important predictor of the utilization of health services. Social support has also been linked with medical service utilization, particularly in older populations.[19]

In the present study, the basic framework of the Andersen and Newman model is used to examine the predictors of university student's utilization of health services for mental or emotional reasons. However, this study also incorporates additional psychosocial factors outside of this framework which, based on the research literature, may be particularly relevant to the service utilization of university students.

2.3 Overview of Research Literature on Health Services Utilization

Utilization research exists in two basic streams. The first stream examines the internal thought processes that determine utilization by breaking down the steps of the help seeking process. For example, one must first perceive a problem, and then he/she must feel that the problem is of adequate severity to require professional attention. If this step is not reached, it is unlikely that the utilization of services will ensue.[20] The perception of need is critical to the use of both general health and mental health services.[21].

The second stream of utilization research focuses more on the external factors that influence a person's decision to seek services, such as the location of services. Models of service utilization, such as the Andersen and Newman model,[13] usually incorporate both internal and external factors.

To a large extent, utilization research has focused on the use of general health care services in the United States. However, given the focus of the present study, that is, the mental health-related service utilization of University students in a mid-size

Canadian city, the literature review that follows concentrates on Canadian research related specifically to service utilization for mental health/emotional reasons.

2.3.1 Need Factors

General Population

Perceived need is the strongest predictor of service utilization. As the first category in the Andersen and Newman model,[13] need factors such as self-rated health have been found to be significant predictors of seeking help for a mental health problem.[14, 22] One particular study out of Montreal, Canada recently examined the rate of service use for mental health reasons and the factors that influenced that use.[22] Out of a random sample of 893 Montreal residents, 12.8% of the population had used such services within the past 12 months, self-perceived mental health was second only to 'type of disorder' as the most predictive factor in determining mental health-related service use. Although the authors point out that help-seeking may be more acceptable in Quebec culture than in other Canadian provinces, research in Alberta and Ontario have produced similar findings.[23-26] For example, a 1996 survey of Ontario residents found that need, defined as a past-year mental disorder diagnosis, was the strongest predictor of service utilization.[24] The authors also note however, that the relationship between need and service use may differ for different groups in society (e.g. urban vs. rural) and therefore may not be as straightforward as previously thought.

Student Population

Although university students generally rate themselves as physically healthy and are less likely to have physical health issues because of their younger age, the recently published Statistical Report on the Health of Canadians states that "unhappiness, stress, and depression are now conditions of youth much more than old age".[27] The report,

which is based on data obtained from the *National Population Health Survey*,[28] presents evidence of declining psychological health in Canadians aged 18-24 years, measured in terms of sense of coherence, self-esteem and mastery. The authors state that the association between mental health and age is a complete reversal from a generation ago, when older Canadians were more likely than younger Canadians to be depressed. Further evidence of the considerable burden of mental health problems in younger populations comes from a 1996 study of Ontarians, which found that one in four 15-24 year olds were affected by a mental health disorder.[29] Although these studies did not specifically look at University students, the magnitude of mental health problems among Canadians of University age is clearly substantial.

The unique challenges that university students face make it plausible that factors such as financial concern, career uncertainty, and sexual assault victimization may be relevant predictors of health service utilization for mental health or emotional reasons. The factors contributing to the stress in students' lives include time pressures, problems in interpersonal relationships,[30] and long working hours outside of class-time.[31] Many of these stressors can have notable academic consequences,[32] which in turn places additional stress on students. Financial stress may be of particular concern. Students who consider abandoning school for financial reasons have poorer mental and physical health, lower levels of social functioning and are also more likely to smoke.[31]

A recent American study explored the specific concerns of students by examining data collected from 13,257 campus counseling center clients over a period of 13 years.[8] The results indicated that, over time, students were experiencing an increase in problems related to life situation, depression, academic skills, grief, medication use, relationships, anxiety, family issues, physical problems, personality

disorders, suicidal thoughts and sexual assaults. Although this study did not show an increase in substance abuse, eating disorders or chronic mental disorders, the authors made particular note of the dramatic increase in depression and suicidal thoughts in the student population over the time-period studied.

2.3.2 Enabling Factors

General Population

According to the Andersen and Newman framework,[13] enabling factors include those that support or undermine a person's decision to seek services, such as income level and community resources. Many studies have identified a relationship between various socioeconomic indicators and service use. For example, research in Ontario found that people who were unable to work were five times more likely to use outpatient mental health services than those who did work for pay.[33] Similarly, compared to those with higher income, people with a household income level of less than $12,000 were three times more likely to use outpatient mental health services. Also out of Ontario, a 1996 study found that people receiving public assistance were more likely to use services for mental health problems than those not receiving assistance.[24]

Other Canadian research suggests that the relationship between service use and socioeconomic status varies, depending on the type of service examined. A recent study that examined NPHS data found that although the likelihood of a single visit to a physician was not affected by income level, people with lower incomes were more likely to be frequent users of primary care services than people with higher incomes.[34] On the other hand, those in higher socioeconomic groups were more likely than those in lower income groups to be referred to a specialist, even after adjusting for differences in

health need. The authors ultimately concluded that although financial status may not directly prevent access to Canadian health services, the use of services nevertheless differs between socioeconomic groups. Similar conclusions were made in a study out of Nova Scotia which found that the use of general physician services increased as socioeconomic status decreased.[35] In this study however, the authors concluded that the socioeconomic differences in service use likely reflected socioeconomic differences in health status (or need) and variation in the inclination to see a physician, rather than the ability to pay.

Another potential enabling factor is geographic region. Urban versus rural status has been found to contribute to the use of mental health services, with a higher proportion of users in urban areas.[24] Also reported in this study was the presence of an interaction between rural/urban status and receiving public assistance. Specifically, urban people on public assistance were three to five times more likely to use services than rural people or those not on public assistance. The authors note that this interaction could reflect different levels of need or availability of resources. On the one hand, the effects of financial hardship may be exacerbated in an urban setting. Alternatively, rural residents may simply prefer more informal sources of help. In contrast to these findings however, other research has failed to find a link between utilization and other enabling factors, such as physical accessibility and time availability.[36]

Student Population

In general, variation in income level and community resources is much wider for the general population than for university populations.[37, 38] Health insurance is also a factor that will not vary much from student to student in a Canadian university setting. Nevertheless, there are certain variables that pertain to university students that may

either support or hinder them from seeking professional help for a mental health or emotional problem, such as the number of hours spent in paid work, and whether they live in university or non-university housing.

2.3.3 Predisposing Factors

General Population

The final category within the Andersen and Newman framework[13] is that of predisposing factors, defined as predetermined characteristics of a person that influence their decision to seek health services, such as gender, age and race. Because of the strong negative correlation between age and physical health, age is a predictor of general health service use. However, conflicting evidence exists for age as a predictor for mental health service use, with some research showing a curvilinear association between age and utilization (with middle-aged people using services more than those who are younger or older),[23] and other research shows no relationship between age and utilization.[22, 33]

A recent Canadian study found that being between 25 and 44 years of age, female and unmarried, predicted higher levels of mental health-related service use.[24] Immigrant status, however, did not significantly contribute to service use.

Gender is one of the most studied determinants of health care utilization. Compared to men, women tend to have a greater number of visits to their general practitioners for mental/emotional reasons,[39, 40] and have more visits to mental hospitals, community mental health centers and general hospital inpatient units.[41] Several socio-cultural theories exist that attempt to explain the gender differences in health service use. One possibility is that women are more comfortable than men when talking about their emotions, or better able than men to recognize emotional problems,

and thus more likely to seek help.[42] A second hypothesis is that women have more flexibility or less time constraints in their schedules than men, and are therefore more able to seek health-related attention. This hypothesis received support in a 1982 study showing that sex differences in utilization were no longer significant after measures of role obligations were statistically controlled for.[43] However, whether such a relationship would hold true in more current times (a time in which dual-earner families now form the majority of Canadian families) has yet to be examined. A third theory suggests that higher female utilization rates are due to the mental health care system's preference for treating illnesses that may be more commonly presented by women than men, such as mood/anxiety disorders. This hypothesis received support in a recent household survey of Ontario residents, which found that the relationship between gender and mental health-related service use varied as a function of the type of mental disorder considered.[33] That is, women had higher utilization rates than men for only certain types of problems, such as depression and mood disorders, whereas men used services more frequently for problems associated with substance abuse.

The relationship between mental health service use and race/ethnicity is not a straightforward one. One recent American study[44] examined patterns of mental health service use in four different racial/ethnic groups in low and high poverty areas. They found that members of minority groups were more likely than Caucasians to use inpatient mental health services in low-poverty areas. They also found that minority children and young adults were more likely than their Caucasian counterparts to use public mental health services in high poverty areas. Overall, the results of this study suggest that minority groups have higher utilization than non-minority groups, even after controlling for socioeconomic status. On the other hand, another American study[45]

that examined mental health service use in insured, non-poor communities concluded that Caucasian people were 1.7 times more likely to use services than African-American and Hispanic people.

Student Population

The relationship between age and use of health services for mental health reasons is virtually unknown in the university student population, although the narrow age range makes it less likely to be a factor than in the general population. Similarly, race and ethnicity have not been examined in the university population as potential predictors of service utilization.

Although predisposing factors have not been widely examined as predictors of mental health service use in the student population, research suggests that this group of factors may be more important in explaining variation in utilization of services among younger populations than in older ones.[17, 46] For example, young people are more variable in their attitudes and beliefs about mental health services than middle-aged or elderly people. In addition, gender differences in service utilization are more pronounced in younger populations than in older ones.

In addition to a gender difference in utilization rates, there may also be gender differences in predictors of use.[36] This, coupled with some very limited research showing that female university students may be more likely to seek treatment at a campus psychiatric clinic than male students,[7] suggests that gender is certainly a factor worth examining in the present study.

2.4 Summary

University students face significant strains that may be affecting their mental health. The literature reviewed suggests that the current level of knowledge about the

factors that predict the use of services for mental health reasons is more or less limited to the general population and may not be representative of the university student population. In order for the services offered by health professionals to be effective, it is imperative that they have knowledge of the factors that influence this population to seek their services. Therefore, the objective of the proposed study is to develop a statistical model which best predicts the utilization of health services for mental health and/or emotional reasons among university students.

3. METHODOLOGY

The data used for this study were collected as part of a larger survey on the health needs of University of Saskatchewan undergraduate students. Prior to outlining the specifics of the study, a brief overview of the survey development, data collection, ethical considerations and data entering/cleaning are presented.

3.1 Background

3.1.1 Survey Development

The "Student Health Needs Survey" (Appendix A) is a 78 item, self-report questionnaire designed to measure a broad array of student socio-demographic and health concerns, such as stress & mental health, substance use & abuse, nutrition & physical fitness, sexual health, and health service utilization.

Survey development took place over the course of six months in 2002. Items selected for the survey were based on a number of different considerations, including extensive consultation with Student Health Centre (SHC) staff and a review of the research literature. In addition, other student surveys were examined, including the American College Health Association's *National College Health Assessment*,[47] the *Canadian Youth Mental Health Survey*,[48] the Centre for Addiction and Mental Health's *Canadian Campus Survey* 1998,[49] and the University of Alberta's *Survey of Unwanted Sexual Experiences*.[50] In addition to these questionnaires, the staff at the SHC and the researcher consulted a survey that had been distributed to University of

Saskatchewan (U of S) students in 1997 for a previous needs assessment.[51]

Once the first draft of the survey was obtained, two separate pilot tests were conducted. The first pilot procedure was intended to test the questionnaire items for content clarity. Ten surveys were distributed to students in a graduate level class entitled *Program Planning and Evaluation* in the department of Community Health and Epidemiology. At the time of this pilot procedure, the students were learning about the use of surveys as a method of program evaluation. As a result of this pilot procedure, the wording and order of some questions were changed.

The second pilot procedure was intended to test the data collection procedure. A 2nd year undergraduate engineering class was used. Out of approximately 50 students present in the class, 17 agreed to complete the questionnaire. As a result of this pilot procedure, several changes were made to the distribution procedure. First, it was decided that the approximate time it would take to complete the survey would be added to the verbal explanation preceding the survey distribution. Second, it was revealed that more detailed instructions would be needed regarding how the surveys would be filled out. Third, the pilot procedure confirmed that 30 minutes was a sufficient amount of class time to request from professors. Finally, the surveys from the pilot were test-scanned, confirming this as an appropriate means of entering the data.

3.1.2 Data Collection

Survey distribution took place over three weeks in late February and early March of the 2002/2003 academic year. The classes in which surveys were distributed were chosen from a random list generated by the University of Saskatchewan's registrar's office. The professors of these classes were then contacted in order of appearance on the list. Of the 77 professors the researcher attempted to reach, 51 were successfully

contacted for a response. Of the 51 professors contacted, 38 granted permission to enter their class. In addition, 3 professors volunteered a class, bringing the total number of classes entered to 41.

Prior to their participation, each class was given a verbal explanation outlining the general purpose of the survey and confidentiality issues. A written explanation of the same nature was given to each student that they could retain for their records (Appendix B).

An additional 26 participants were recruited voluntarily after supper in the residence eating hall. The SHC staff felt it was important for the needs assessment to over-sample this subset of the population to ensure adequate representation. Research has shown students who live in residence may be more likely than other students to binge drink,[49, 52, 53] and less likely to attempt suicide.[54] In total, 1276 students agreed to participate in the study.

3.1.3 Ethical Considerations

Ethical approval for this study was obtained from the University of Saskatchewan's Advisory Committee on Ethics in Behavioral Sciences (Appendix C). As mentioned, the students who participated were recruited on a voluntary basis and were given both written and verbal explanations of the study's purpose and the intended use of information gained. Furthermore, confidentiality was ensured by assigning non-identifying numbers to the surveys after they were completed and by asking participants not to write their name anywhere on the questionnaire. Participants were assured that the data collected would be summarized in aggregate form only and that no individual responses would be reported. All participants were given the option of withdrawing from the study at any time and to decline from answering any questions they did not

wish to complete. As the questionnaire contained sensitive material, the participants were also provided with the phone numbers of several counseling services on campus.

3.1.4 Data Entry and Cleaning

Data entry was completed using a computerized scanner by the staff at Information Technology Services (ITS) at the University of Saskatchewan. Errors in the data (i.e. duplicate responses) were automatically labeled as asterisks in the data. All asterisks were tabulated and manually cross-referenced to the original survey copy. If the error made was correctable (i.e. one response was clearly not erased properly, a disregarded response was marked with an 'x' rather than erased, etc…), the appropriate corrections were made. If the errors were not correctable (i.e. two responses were given to a single question), they were left as asterisks to indicate an error. Missing data was left blank. All data was converted to SPSS version 11.5 for analysis.

3.2 Study Variables

3.2.1 Dependent Variable

The dependent variable was based on a single survey question asking about the number of times within the past 12 months, a participant had "seen or talked on the telephone with a health professional regarding an emotional or mental health issue" (questionnaire item #19). This question has been used in several surveys to measure service utilization, including Statistics Canada's National Population Health Survey (NPHS).[28] Students were given a choice of seven answer options, which included: 1) *None*; 2) *One*; 3) *Two*; 4) *Three*; 5) *Four*; 6) *5-10*; or 7) *10 or more*. For the present analysis, answer options two through seven were collapsed into one category, resulting in a dichotomous outcome defined as: 1) had not used such services; or 2) had used such services at least once. A dichotomous outcome was used to ensure adequate power

to detect a difference between groups and because the main research question was concerned with the use of services rather than intensity of care.

3.2.2 Independent Variables

The independent variables selected for modeling in the present study were based on Andersen and Newman's health service utilization framework.[13] In addition to the variables that appear in the framework, several student-specific variables were examined as potential predictors of service use, including *college*, *number of years in university*, *current academic performance*, *career certainty*, and *student registration status*. These factors, which could arguably be classified under Andersen and Newman's *'predisposing'* category, were chosen primarily as a result of discussions with the SHC staff. Given the lack of a student-specific model, clinical expertise was relied upon to hypothesize potential predictors that may influence service use. In total, twenty-six independent variables were considered (see Table 3.1).

3.3 Data Analysis

Logistic regression was used to determine the most parsimonious, yet reasonable model describing the relationship between service use for mental health reasons among university students and the independent variables described. This type of analysis was appropriate because the dependent variable (service use) was dichotomous. The model building procedure described by Hosmer & Lemeshow [55] was used to identify the factors that influence students' utilization of health services for mental or emotional reasons. This model-building process involved the following steps:

1) Bivariate Analysis and Selection of Variables for Multivariable Analysis.

Because all of the independent variables in the present study were categorical, a series of chi-square tests were conducted to examine crude associations between each of the

Table 3.1 – Dependent and Independent Variables and Questionnaire Items

Variable	Questionnaire Item	Answer Categories
Dependent Variable		
Use of Health services for Mental Health or Emotional Reasons	How many times within the past 12 months have you seen or talked on the telephone to a health professional regarding an emotional or mental health issue?	None At least once
Independent Variables		
Need Factors		
Perceived Need for Professional Help (for emotional problems)	At this time, do you think you need professional help for emotional problems?	Yes No
Perceived Need for Professional Help (for substance abuse)	At this time, do you think you need professional help for substance abuse?	Yes No
Perceived Presence of an Eating Disorder	Do you have an eating disorder (e.g. Anorexia Nervosa, Bulimia…)?	Yes, probably, Maybe or Not sure No
Presence of a Disability	Are you registered as having a disability?	Yes No
Enabling Factors		
Living arrangement (place of residence)	What is your current living arrangement?	University residence Non-university housing
Dependents	Do you have any dependents?	Yes No
Hours of paid work	On <u>average</u>, how many hours a week do you work for pay (during the school year)?	0 hours 1-9 hours 10-19 hours 20+ hours
Predisposing Factors		
Age	What is your age in years?	19 & under 20-23 24+
Gender	What gender are you?	Male Female
International Status	Are you classified as an international student?	Yes No
Aboriginal Status	Do you consider yourself an Aboriginal person?	Non-aboriginal Aboriginal

Variable	Questionnaire Item	Answer Categories
Marital Status	What is your marital status?	Married/Common Law Single Widowed/Divorced
Presence of Family Doctor	Do you currently have a regular family doctor or primary care nurse?	Yes No
Previous Depression Diagnosis	Have you ever been diagnosed with depression?	Yes No
Past Suicide Attempts	Have you ever attempted suicide?	Yes No
Past/Present Suicide Ideation	Since starting university, have you contemplated suicide to the point where you had a specific plan or made specific preparations for suicide?	Yes No
Other Variables		
College	What college are you registered in?	Agriculture Arts & Science Commerce Dentistry Education Engineering Veterinary Medicine Unclassified Other*
Years in University	How many years (including this year) have you attended university?	One Two Three Four Five or more
Current Academic Performance	What is your current approximate academic average?	below 60% 60-79% 80%+
Current Level of Stress	In general, how would you rate your current overall level of stress?	Overwhelmed/Highly Moderately A little/Not at all

* "Other" includes the Colleges of *Kinesiology*, *Law*, *Nursing*, *Pharmacy & Nutrition*, *Physical Therapy*, and *Graduate Studies and Research*

Variable	Questionnaire Item	Answer Categories
Financial Concerns	If you have financial debt, please circle the most appropriate answer. *(If you do not have financial debt, please skip to the next question.)* "I have financial debt and I…	Am confident to pay it back Am worried about paying it back Am extremely stressed about paying it back No response
Career Certainty	Please rate your agreement with the following statement: "I am certain about my career path".	Strongly Disagree/disagree Agree/strongly agree
Sexual Orientation	How would you describe yourself?	Heterosexual Non-heterosexual
Sexual Assault Victimization	Since you started university, have you been sexually assaulted *(any unwanted act of a sexual nature, ranging from touching, fondling, or kissing to forced sexual intercourse)?*	Yes No
Presence of an STI	Have you ever been diagnosed with any of the following Sexually Transmitted Infections? *(Please select all that apply).*	No STI At least one STI
Students Status	Are you:	Full-time Part-time

independent variables and mental health service use. Independent variable with p-values of < .25, or those known to have theoretical and/or clinical importance, were retained as potential predictors.

2) Verification Resulting in "Main Effects" Model.

The first multivariable logistic regression was conducted by simultaneously entering the independent variables which met the specified statistical or theoretical criteria outlined

above. The Wald statistic and the likelihood ratio test were then used to determine the contribution of each independent variable to the outcome of interest, adjusting for all other variables in the model. Variables that did not contribute were eliminated and a new model was fit, which was then compared to the old model using the likelihood ratio test. This process of deleting variables and refitting the model was carried out until only statistically and/or clinically relevant variables remained. As a final verification, variables that were not selected for the original multivariable model were added back into the model and checked for their contribution using the likelihood ratio test. The result of this stage of the analysis was the main effects model.

3) Consideration of Interaction Terms.

The presence of an interaction implies that the effect of one independent variable on the outcome of interest is influenced by levels of another independent variable. Based on the literature review, interactions between gender and perceived need for professional help (for emotional problems), past depression diagnosis and sexual assault victimization were tested. Also based on the literature reviewed, an interaction between perceived need for professional help (for emotional problems) and past depression diagnosis was examined. Interactions were tested by creating a product term for the variables in question, and using the likelihood ratio test to assess their contribution to the model.

4) Assessing Multicolinearity.

Predictor variables carry the assumption of independence. A strong association between two or more predictor variables in a regression model suggests the presence of multicolinearity. As colinearity increases, the standard errors of the B coefficients also increase, which can influence their level of significance. In other words, the presence of

multicolinearity increases the probability that a good predictor variable will be found non-significant and rejected from the model. In the present study, multicolinearity was tested by performing a linear regression analysis with the same outcome and predictor variables as the main effects model.[56] The Variance Inflation Factor (VIF) and Tolerance (1/VIF) were then assessed. The VIF indicates whether a predictor has a strong relationship with other predictors. A value of 10 or more indicates a problem with multicolinearity. A Tolerance value of below 0.1 gives the same indication.

5) Assessing Goodness of Fit

Several methods to assess the overall fit of the model were used. The Hosmer-Lemeshow Goodness of Fit Test tests the hypothesis that the observed data are significantly different from predicted values. The second method involved checking the overall percentage of subjects correctly classified using the predictors in the model, with a higher percentage indicating a better fit. All analyses were performed using SPSS version 11.5.

3.4 Anticipated Significance

The results of this study will be of interest to the University of Saskatchewan SHC and any campus organization that provides health care to university students. The current study is imperative if the services provided are to be relevant to the dynamic university population. Uncovering the reasons why students use services for mental or emotional reasons will enable the health professionals who serve them to either justify current services or implement improvements. Furthermore, it is hoped that the development of such a model will result in one that can be used by other university populations to identify their specific patterns of utilization. It is not sufficient to simply apply a general model of utilization to a population that is unique in so many respects.

4. RESULTS

This chapter begins with a demographic profile of study participants and a review of the survey response rate and representativeness of the sample, followed by a summary of the study's main results.

4.1 Participant Characteristics

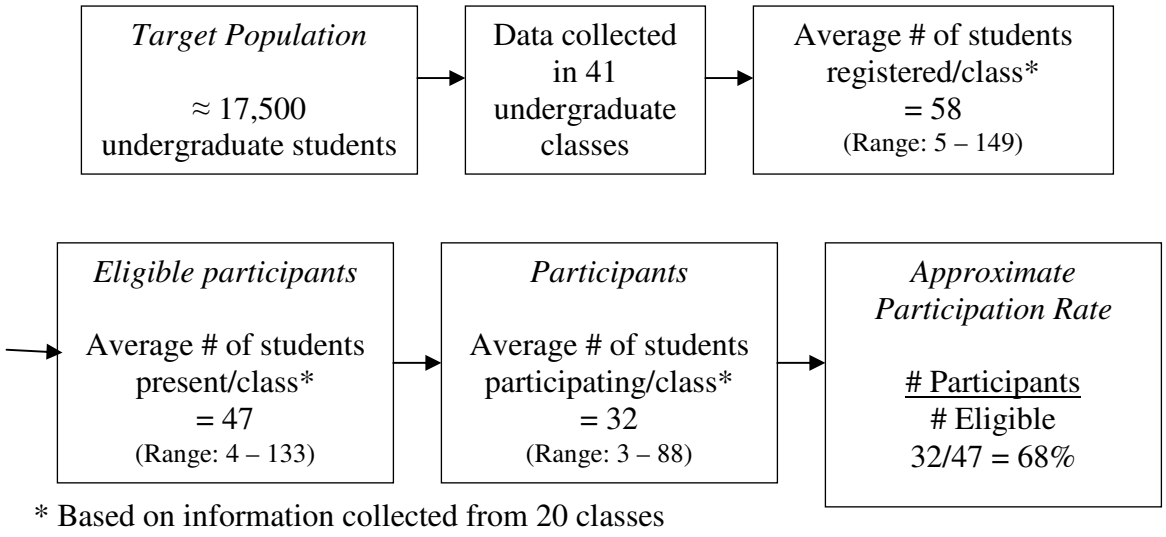
The sample consisted of 1276 University of Saskatchewan students registered in a variety of colleges and programs. 53 students were excluded due to missing information regarding mental health related service use, resulting in a final sample of 1223 (see Table 4.1). 58.2% of the students in the sample were female and 96.7% were registered as full-time students. Slightly over half of the students (51.2%) were between the ages of 20 and 23 years and registered in the college of Arts and Science. International and aboriginal students comprised 2.5% and 3.8% of the sample, respectively. One in five students indicated that they had seen or talked on the telephone with a health professional regarding a mental health or emotional issue in the past year.

4.2 Participation

According to University of Saskatchewan Institutional Analysis, there were 17,497 undergraduate students (13,844 full-time and 3,653 part-time) registered in the regular session of the 2001/2002 academic year, including off-campus and Unclassified students. As stated previously, 1276 students participated. An approximate participation rate of 68% was calculated (see Figure 4.1).

Table 4.1 – Socio-demographic Profile and Mental Health Related Service Use of Participants

Variable	n (%)
# Times in past 12 months seen/talked on phone to health professional regarding mental health issue (Dependent Variable)	
0 times	977 (79.9%)
1 or more times	246 (20.1%)
Age	
19 & under	344 (28.2%)
20-23	625 (51.2%)
24+	252 (20.6%)
Gender	
Male	511 (41.8%)
Female	712 (58.2%)
Student Status	
Full-time	1135 (96.7%)
Part-time	39 (3.3%)
College	
Agriculture	67 (5.5%)
Arts & Science	653 (53.4%)
Commerce	145 (11.9%)
Dentistry	17 (1.4%)
Education	111 (9.1%)
Engineering	88 (7.2%)
Veterinary Medicine	59 (4.8%)
Other	27 (2.2%)
Unclassified	54 (4.4%)
Years in University	
1	323 (26.9%)
2	222 (18.5%)
3	233 (19.4%)
4	207 (17.3%)
5 or more	215 (17.9%)
International Status	
International	30 (2.5%)
Non-international	1187 (97.5%)
Aboriginal Status	
Aboriginal	46 (3.8%)
Non-aboriginal	1172 (96.2%)
Marital Status	
Married/Common Law	124 (10.2%)
Single	1077 (88.6%)
Widowed/Divorced	15 (1.2%)



* Based on information collected from 20 classes

Figure 4.1 – Calculation of Approximate Participation Rate

4.3 Representativeness of the Sample

The demographic information for this sample was compared with university statistical data of undergraduate students (available for the academic year of 2001/2002). As shown in Table 4.2, the sample was representative for age, gender and international status (i.e. sample proportions were within 4% of the population proportions). Students registered as *Unclassified* or in colleges other than those specified were slightly under-represented, whereas students from *Arts & Science* were slightly over-represented, as were full-time students. Population data was not available for comparisons regarding aboriginal status, marital status or years in university.

4.3 Findings Related to Model of Health Care Utilization

The primary objective of this study was to examine the factors associated with mental health-related service use by developing a health service utilization model that was specific to this population. This objective was fulfilled using the model building procedure described by Hosmer & Lemeshow.[55]

Table 4.2 – Comparison of Sample Data to Available Population Data

Demographic Variable	Sample Data	Available Population Data 2001/2002	Representative
Age			
19 & under	344 (28.2%)	28.9%	Sample
20-23	625 (51.1%)	47.1%	Representative
24+	252 (20.6%)	24.0%	
Gender			
Male	511 (41.8%)	43.5%	Sample
Female	712 (58.2%)	56.5%	Representative
International Status			
International	30 (2.5%)	4.3%	Sample
Non-international	1187 (97.5)	95.7%	Representative
College			
Agriculture	67 (5.5%)	4.0%	'Arts & Science'
Arts & Science	653 (53.4%)	43.0%	over-represented
Commerce	145 (11.9%)	10.0%	in sample
Dentistry	17 (1.4%)	0.7%	
Education	111 (9.1%)	7.2%	'Other' &
Engineering	88 (7.2%)	8.5%	'Unclassified'
Veterinary Medicine	59 (4.8%)	1.9%	under-represented
Other	27 (2.2%)	12.7%	in sample
Unclassified	54 (4.4%)	12.0%	
Student Status			
Full-time	1135 (96.7%)	82.0%	'Full-time' over-
Part-time	39 (3.3%)	18.0%	represented in sample

4.3.1 Bivariate Analysis and Selection of Variables for Multivariable Analysis

Results of the initial chi-square analyses are summarized and presented in Table 4.3. Of the 26 variables initially defined as potential predictors of service use, 19 met the specified statistical criteria and were selected for the multivariable analysis. The only variable that did not meet the statistical criteria but was kept was *presence of a Sexually Transmitted Infection (STI).* This variable's p-value was borderline statistically significant and therefore retained for further examination.

Table 4.3 – Summary of Bivariate Analysis

Variable	Users	Non-Users	Total	p-Value
Need Factors				
Perceived Need for Professional Help (for emotional problems)	59 (51.3%)	56 (48.7%)	115 (100%)	0.00*
Yes	180 (16.7%)	901 (83.3%)	1081 (100%)	
No				
Perceived Need for Professional Help (for substance abuse)	3 (42.9%)	4 (57.1%)	7 (100%)	0.32
Yes	218 (20.0%)	871 (80.0%)	1089 (100%)	
No				
Perceived Presence of an Eating disorder				
Yes, probably, maybe or not sure	19 (35.2%)	35 (64.8%)	54 (100%)	0.00*
No	219 (19.2%)	924 (80.8%)	1143 (100%)	
Presence of a Disability				
Yes	5 (21.7%)	18 (78.3%)	23 (100%)	0.85
No	241 (20.1%)	958 (79.9%)	1199 (100%)	
Enabling Factors				
Living Arrangement				
University residence	25 (22.3%)	87 (77.7%)	112 (100%)	0.51
Non-university housing	217 (19.7%)	884 (80.3%)	1101 (100%)	
Dependants				
Yes	18 (19.1%)	76 (80.9%)	94 (100%)	0.75
No	226 (20.5%)	874 (79.5%)	1100 (100%)	
Hours of Paid Work				
0 hours	115 (18.5%)	505 (81.5%)	620 (100%)	
1-9 hours/week	48 (22.2%)	168 (77.8%)	216 (100%)	0.13*
10-19 hours/week	45 (18.9%)	193 (81.1%)	238 (100%)	
20+ hours/week	38 (26.8%)	104 (73.2%)	142 (100%)	
Predisposing Factors				
Age				
19 & under	59 (17.2%)	285 (82.8%)	344 (100%)	
20-23	130 (20.8%)	495 (79.2%)	625 (100%)	0.22*
24+	57 (22.6%)	195 (77.4%)	252 (100%)	
Gender				
Male	63 (12.3%)	448 (87.7%)	511 (100%)	0.00*
Female	183 (25.7%)	529 (74.3%)	712 (100%)	

Variable	Users	Non-Users		p-Value
International Status				
Yes	7 (23.3%)	23 (76.7%)	30 (100%)	0.65
No	237 (20.0%)	950 (80.0%)	1187 (100%)	
Aboriginal Status				
Yes	14 (30.4%)	32 (69.6%)	46 (100%)	0.08*
No	231 (19.7%)	941 (80.3%)	1172 (100%)	
Marital Status				
Married/Common law	20 (16.1%)	104 (83.9%)	124 (100%)	
Single	218 (20.2%)	859 (79.8%)	1077 (100%)	0.09*
Widowed/Divorced	6 (40.0%)	9 (60.0%)	15 (100%)	
Presence of a Family Doctor				
Yes	201 (23.6%)	650 (76.4%)	851 (100%)	0.00*
No	44 (12.2%)	317 (87.8%)	361 (100%)	
Previous Depression Diagnosis	60 (64.5%)	33 (35.5%)	93 (100%)	0.00*
Yes	177 (16.1%)	920 (83.9%)	1097 (100%)	
No				
Past Suicide Attempt				
Yes	26 (47.9%)	29 (52.7%)	55 (100%)	0.00*
No	216 (18.7%)	939 (81.3%)	1155 (100%)	
Past/present Suicide Ideation				
Yes	22 (61.1%)	14 (38.9%)	36 (100%)	0.00*
No	221 (18.8%)	952 (81.2%)	1173 (100%)	
Other Variables				
College				
Agriculture	12 (17.9%)	55 (82.1%)	67 (100%)	
Arts & Science	150 (23.0%)	503 (77.0%)	653 (100%)	
Commerce	24 (16.6%)	121 (83.4%)	145 (100%)	
Dentistry	2 (11.8%)	15 (88.2%)	17 (100%)	0.03*
Education	21 (18.9%)	90 (81.1%)	111 (100%)	
Engineering	6 (6.8%)	82 (93.2%)	88 (100%)	
Veterinary Medicine	16 (27.1%)	43 (72.9%)	59 (100%)	
Other	4 (14.8%)	23 (85.2%)	27 (100%)	
Unclassified	10 (18.5%)	44 (81.5%)	54 (100%)	
Years in University				
1	61 (18.9%)	262 (81.1%)	323 (100%)	
2	47 (21.2%)	175 (78.8%)	222 (100%)	
3	43 (18.8%)	186 (81.2%)	229 (100%)	0.97
4	43 (20.8%)	164 (79.2%)	207 (100%)	
5 or more	44 (20.5%)	171 (79.5%)	215 (100%)	

Variable	Users	Non-Users		p-Value
Current Academic Performance				
Below 60%	10 (17.5%)	47 (82.5%)	57 (100%)	
60-79%	195 (21.2%)	724 (78.8%)	919 (100%)	0.27
80%+	40 (16.7%)	199 (83.3%)	239 (100%)	
Current Level of Stress				
Overwhelmed/Highly	100 (29.5%)	239 (70.5%)	339 (100%)	
Moderately	95 (18.7%)	412 (81.3%)	507 (100%)	0.00*
A little/Not at all	51 (13.6%)	324 (86.4%)	375 (100%)	
Financial Concerns				
No financial debt	98 (19.3%)	411 (80.7%)	509 (100%)	
Not concerned about paying	89 (19.2%)	374 (80.8%)	463 (100%)	
it back	42 (21.1%)	157 (78.9%)	199 (100%)	0.13*
Slightly concerned	17 (32.7%)	35 (67.3%)	52 (100%)	
Extremely worried				
I am certain about my career path	111 (21.9%)	397 (78.1%)	508 (100%)	0.22*
Disagree/Strongly disagree	127 (19.0%)	543 (81.0%)	670 (100%)	
Agree/Strongly agree				
Sexual Orientation				
Heterosexual	230 (19.9%)	924 (80.1%)	1154 (100%)	0.10*
Non-heterosexual	11 (31.4%)	24 (68.6%)	35 (100%)	
Sexual Assault Victimization				
Yes	35 (53.0%)	31 (47.0%)	66 (100%)	0.00*
No	205 (18.1%)	925 (81.9%)	1130 (100%)	
Presence of STI				
None	237 (19.9%)	954 (80.1%)	1191 (100%)	0.25**
At least one	9 (28.1%)	23 (71.9%)	32 (100%)	
Student status				
Full-time	226 (19.9%)	909 (80.1%)	1135 (100%)	0.10*
Part-time	12 (30.8%)	27 (69.2%)	39 (100%)	

* $p<0.25$

** Borderline significant

4.3.2 Verification resulting in "Main Effects" Model

The fit of the initial multivariable model, followed by examination of the Wald statistic of each variable and application of the likelihood ratio test to examine the

contribution of each independent variable to the model resulted in a model that included six of the 19 variables from the bivariate analysis.

Hosmer and Lemeshow also suggested that, as a final check, variables that were not selected for the original multivariable model be added back to check for potential contribution to the model.[55] This step was performed, however no additional variables were added to the model. Thus, the main effects model consisted of six variables: 1) perceived need for professional help (for emotional problems), 2) previous depression diagnosis, 3) past or present suicide ideation, 4) sexual assault victimization, 5) presence of a family doctor and 6) gender.

4.3.3 Consideration of Interaction Terms

The following interactions were tested:

1) Gender x Perceived Need for Professional Help (for emotional problems)
2) Gender x Past Depression Diagnosis
3) Gender x Sexual Assault Victimization
4) Perceived Need for Professional Help (for emotional problems) x Past Depression Diagnosis

After performing a series of likelihood ratio tests, none of the interaction terms tested reached statistical significance.

4.3.4 Assessing Multicolinearity

A linear regression was carried out using the same outcome and predictor variables as in the main effects model, and VIF values and Tolerance levels examined. VIF values were slightly above 1 and Tolerance levels were slightly below 1, indicating that multicolinearity did not appear to be an issue in this model.

4.3.5 Assessing Goodness of Fit

With a p-value of 1 indicating a perfect fit, the p-value of .915 (chi-square = 1.487, df = 5) obtained for this model indicates that the observed data are not significantly different from predicted values. In addition, when each case was classified according to the observed values of the outcome variable, the overall percentage of subjects correctly classified using the predictors of this model was 83.7%. These results suggest that this model is a good fit.

4.3.6 Final Model and Interpretation

The variables that predict whether university students will use health services for mental/emotional reasons are summarized in Table 4.4. Under Andersen and Newman's category of *need* factors, *perceived need for professional help (for emotional problems)* was included in the final model. Thus, students that felt they had a need that warranted professional attention were more than three times as likely to have seen a professional regarding an emotional issue within the past year, compared to students who did not perceived such a need.

Several factors in Andersen and Newman's *predisposing* category were also included in the final model. Females were nearly twice as likely as males to seek help. Also, *past or present suicidal ideation* and *past depression diagnosis* both remained in the final model. That is, students who were presently considering suicide, or who had planned for suicide in the past, were 2.7 times more likely than those who had not to have used professional services to discuss a mental health/emotional issue. As well, students with a depression diagnosis in their past were nearly six times as likely to have visited a health professional for a mental health or emotional reason within the past year than those who have not been previously diagnosed. The last *predisposing* factor to be included in the model indicated that

Table 4.4 – Final Model

Variable	Odds Ratio	95% Confidence Interval	p-Value
Perceived Need for Professional Help (for emotional problems) Yes No	3.16	1.95 – 5.10	0.00
Gender Female Male	1.96	1.36 – 2.82	0.00
Past/present Suicide Ideation Yes No	2.72	1.07 – 6.96	0.04
Previous Depression Diagnosis Yes No	5.77	3.40 – 9.77	0.00
Presence of a Family Doctor Yes No	1.76	1.18 – 2.65	0.01
Sexual Assault Victimization Yes No	3.85	2.08 – 7.12	0.00

students who have a regular family doctor were nearly twice as likely to visit a health professional for mental health or emotional reasons within the past year as those without a family doctor.

Although no *enabling* factors appeared in the final model, there was one other factor that did appear. The variable *sexual assault victimization* remained in the final model, revealing that students who have been sexually assaulted were nearly four times more likely than those not assaulted to have used health services for mental/emotional reasons within the past year.

5. DISCUSSION

This chapter provides a discussion of the student-specific model of mental health-related service utilization developed in the present study and how it differs from Andersen and Newman's model of health service utilization for the general population. In order to provide context, some additional findings from the larger needs assessment will be incorporated into the discussion. Study implications and recommendations for future research are also presented.

5.1 Model of Health Service Utilization for Mental Health/Emotional Reasons

The main research question of this study was "*What are the factors that influence health service utilization for mental or emotional reasons among university students?*" It was hypothesized that some factors found to be predictive of service use in general population samples, such as perceived need, would also be important in our student population. However, given the unique characteristics of the university population, it was hypothesized that several student-specific characteristics, such as career uncertainty and stress over financial debt, would also play a role in predicting students' health care use. The results of the study identified six characteristics that were significantly associated with university students' use of services for mental health-related reasons:

1) Perceived Need for Professional Help (for emotional problems)

2) Previous Depression Diagnosis

3) Past or Present Suicide Ideation

4) Sexual Assault Victimization

5) Presence of a Family Doctor

6) Gender

These factors are discussed in more detail below.

5.1.1 Perceived Need for Professional Help (for emotional problems)

As hypothesized, perceived need was found to be significantly associated with the dependent variable; that is those students reporting a need for emotional help were three times more likely than those who did not perceive such a need to have used mental health related services within the past year. This finding confirms earlier research showing a strong association between need and service use.[14, 22, 23] In the present study, nearly 10% of the students surveyed reported having an emotional need requiring professional attention, suggesting that a significant minority of University students are struggling with mental health issues.[27] Given research suggesting that psychological well-being is poorer among younger than older age groups,[27] and that this is a trend that has virtually been reversed over the course of a generation, the increasing number of students seeking help for stress related emotional problems is not surprising.[1-4] That is, the increase in visits for the treatment of mental health disorders observed at the University of Toronto, Queen's University in Kingston, and the University of Western Ontario may be due, in part, to an increase in perceived need among students.

Although the perception of need is a predictor of service use in both general and student populations, the cause of this need may not be consistent across the two groups. In the present study, participants identified academic performance, class load/scheduling and finances as their top three sources of stress. With the exception of finances, these

stressors are indeed unique to students and although they are not necessarily causing the perceived need for emotional help, it would certainly be worth examining in future research.

Although a need for help with emotional problems was associated with students' decision to seek help, there were several other types of perceived need that did not show an association, such as perceived need for professional help for substance abuse problems. This finding may reflect the way substance use and abuse are viewed in university populations. Substance use, specifically the use of alcohol, may be viewed by some as a conventional part of university life. A recently published book on the developmental transitions during adolescence, and the health risks that accompany those transitions, classifies alcohol use and binge drinking as purposeful and intended for the pursuit of developmentally normative goals.[57]

Empirical studies also suggest that substance use is part of the university lifestyle. For example, a study done in 1997 examined the relationship between gender, age, year of study, academic performance, program of study and place of residence to alcohol and drug use of 5,926 Canadian college students.[58] Their results showed that males were 3 times more likely than females to consume more than 15 alcoholic drinks per week. Students between the ages of 17-19 years of age were also more likely to consume this amount than older students, as were students with lower grades compared to those with higher grades. Also, students who did not live with their parents and those enrolled in arts and social sciences were more likely to consume more alcohol than those who lived at home and were enrolled in other study programs.

The broader SHC needs assessment, which used the same sample of students in this study, 91% of students reported consuming some level of alcohol within the past

year. In addition, more males than females reported negative consequences due to drinking. Students who lived in university residence or without family were more likely to miss class due to a hangover than those who lived at home. Contrary to the study discussed above, college was not associated with students' drinking behaviors.

The perceived presence of an eating disorder was also unrelated to service use. According to "A Report on Mental Illness in Canada", published by Health Canada in 2002, eating disorders predominantly affect young women.[59] Approximately 0.5% to 4% of women will develop anorexia nervosa in their lifetime, and 1% to 4% of women will develop bulimia. According to Canadian studies on university populations, the reasons for a high number of eating disorders in young female students, include the theory that females are taught to view themselves in relation to others, and to conform to society's ideals,[60] perceived stress and the use of emotion-oriented coping techniques,[61] and reading beauty and fitness magazines.[62] With regards to a relationship between eating disorders and help-seeking, a 2002 study that examined women at a large mid-Atlantic university with eating disorders, found that participants were most likely to say they preferred discussing eating issues with a close friend, parent or significant other than a professional.[63] When asked who they would consult if they decided to seek professional help, most women indicated a physician, nutritionist, or therapist.

Given that both substance abuse and eating disorders are problems typically involving adolescents and young adults, and that significant associations have been documented between substance abuse and other mental health problems,[64] and between eating disorders and other mental health problems,[59, 65, 66] it is somewhat

surprising that the presence of these problems did not predict help-seeking behavior in the present study.

5.1.2 Previous Depression Diagnosis

Students reporting a previous depression diagnosis were nearly six times more likely than those without a previous diagnosis to use mental health related services in the past year. In Canada, approximately 8% of adults experience major depression at some point in their lives, with the onset usually occurring in adolescence.[59] In this study, 8% of students reported ever having a diagnosis of depression, although only 2% of students reported currently being under the care of a health professional for treatment.

Twice the percentage of women as men in this study reported having had a diagnosis of depression, which is similar to national rates.[59] While rates of depression and bipolar disorder have been decreasing in older populations, this has not been the case with younger populations. In fact, bipolar rates among young women have more than doubled since the early 1980's.

Although the numbers are daunting, it is encouraging to know that a diagnosis of depression predicted the use of health services. Although many cases remain undiagnosed, for those that do seek help, depression is indeed treatable, either with medications,[67, 68] psychotherapy,[69] or a combination of both.[70, 71] Additionally, early diagnosis of depression, and the appropriate treatment, can reduce the risk of developing other mental illnesses and/or suicide.

5.1.3 Past or Present Suicide Ideation

Suicide ideation was also found to contribute to service use, with students who currently were or had contemplated suicide nearly three times more likely to use services for mental/emotional reasons than those who have never contemplated it.

Suicide is a major problem among Canadian young people.[59] University-aged people are particularly affected, with nearly ¼ of all deaths among 15-24 year olds due to suicide. The rate of suicide in Canada is approximately 4 times higher among men than women. Suicide rates among aboriginal Canadians are three to six times greater than the national average, and are particularly high among male aboriginal teenagers and young adults.[72] Given these statistics, and recent research showing a dramatic increase in suicidal thoughts among university students,[8] it is plausible that the increase in reported cases of service use for mental health problems is real, and not just perceived.

In the current study, 5% of students reported ever attempting suicide, with a slightly lower proportion reporting having contemplated suicide since they started university. Contrary to national statistics, a slightly greater proportion of female than male students in the present study attempted suicide. On the other hand, similarities with national statistics were apparent among aboriginal students in this study: 14% of aboriginal students reported a past suicide attempt, compared with 4% of non aboriginal students. Interestingly, students who lived in residence were more likely to have attempted suicide than students who did not live in residence (9% compared to 4%).

Although suicide ideation was associated with service use, a *previous suicide attempt* was not a significant contributor to the model. Practically, this may seem counterintuitive, however in multivariable modeling, the independent effect of each variable is examined. These results indicate that once contemplation of suicide is included in the model, a previous suicide attempt did not add to the prediction of the outcome.

5.1.4 Sexual Assault Victimization

Students who had been sexually assaulted in the past were nearly four times more likely to visit a health care professional to discuss an emotional issue than students who were not victimized. Research suggests that sexual assault is a key issue for many Canadian university students.[8] Furthermore, although the prevalence of sexual assault at universities is difficult to accurately measure, the magnitude of the problems associated with sexual assault may be quite large.

In the present study, 8.3% of female students and 1.3% of male students indicated having been sexually assaulted since starting university. Although comparisons across studies is difficult given varying ways of measuring sexual assault, the prevalence of sexual assault has been found to be much higher in other studies than in the present study. For example, a Canadian study conducted at 6 universities across Ontario reports that as many as 15% of female university students have experienced some form of sexual assault.[73]

The high prevalence of sexual assault is also disturbing because of the life-long impact the victim can suffer, including emotional disorders and suicide.[74] In a recent study that reviewed a cluster of suicides, attempted suicides and suicidal ideations that occurred in 1995 in a Manitoba First Nations Community, found that 4 out of 5 of the female cases presenting with suicidal ideation were victims of previous sexual assault.[75]

Some research suggests that the effect of sexual assault on service utilization is modified with the recency of the assault. A recent American study, compared contact with health professionals for mental health or substance abuse problems between three groups of women: those sexually assaulted during childhood, those sexually assaulted

during adulthood, and those sexually assaulted during both periods.[76] The results showed that women assaulted at both time points were significantly more likely to have had contact with health professionals for mental health or substance abuse issues (43.9%) than women assaulted in adulthood only (26.4%) or childhood only (20.4%). Also, for the women who had experienced childhood sexual assault only and adulthood sexual assault only, the odds of help-seeking for mental health issues increased as they got older. Furthermore, depressed victims of sexual assault were six times more likely to contact health professionals than their non-depressed counterparts. The results of this study suggest the importance of when the assault took place as influencing help-seeking and how much time has passed since the assault. Given that most university students are only in the early stages of adulthood, it is likely that many who have experienced sexual assault, either during childhood or adulthood, have not yet sought professional help for problems they may be experiencing.

5.1.5 Presence of a Family Doctor

University students who reported having a family doctor were nearly twice as likely to see or talk to a health professional regarding a mental health or emotional issue as those who did not. A number of reasons might explain this finding. Perhaps it is simply more convenient to discuss an emotional issue with a professional when it comes time for a physical exam. A second possibility is that a person who sees a doctor on a regular basis is more comfortable with health professionals, which may in turn result in them being more likely to discuss emotional issues.

Of the 246 students in this study who reported seeing or talking to a health professional regarding a mental health issue, 209 (85%) identified their family doctor as the professional they saw. Although this does not necessarily mean that they did not talk

to other types of professionals as well, it does suggest that the primary care setting is where many students begin the help seeking process. Research with general population samples also suggests that for many people, family doctors are the professional of choice with whom to discuss mental health issues. A recent Canadian study, using data from the 1998-1999 National Population Health Survey (NPHS), sought to determine the rate of mental health service provision and specialist referral in primary care settings in Canada.[77] Out of 608 respondents who were depressed within the past year, one quarter of them discussed their mental health with their family doctors. Respondents between the ages of 12 and 24 years were more likely to have chronic symptoms, and to be referred to mental health specialist than other age groups. The authors concluded that the impairment associated with depression and chronicity of symptoms were the crucial determinants of the decisions made by GP's or family doctors regarding mental health services. They also identified patients' willingness to seek advice from a GP or family doctor as a key factor in managing depression in primary care settings.

Regardless of the reasons why students who have family doctors are more likely to seek services than those who do not, it is likely that many students who have emotional problems are not seeking help. In this study, 70% of the students surveyed indicated having a regular family doctor. Other research has shown that only about half of university students see a physician on a regular basis and that they are perhaps more likely than the general population to avoid or delay seeking help for health problems.[10] Either way, this leaves a substantial number of students who do not see a doctor regularly, and therefore, are less likely to speak to a health professional about emotional issues.

5.1.6 Gender

Consistent with previous research,[33, 39-41] gender was found to significantly contribute to the model, with females being nearly twice as likely as males to use services for mental/emotional reasons. Although similar findings have been reported in both general and student populations,[7, 36] the reason for this gender difference remains unclear.

One hypothesis, which suggests that women are more capable of recognizing emotional issues than men, and therefore more likely to ask for help, may be applicable as there is no basis for believing that this gender difference would vary between university and general population samples. Another hypothesis, based on the notion that traditional female role obligations are more flexible than traditional male role obligations, is less likely to be supported in the student population than in the general population. Certainly, the academic time constraints of females are no different than those of males. Furthermore, the majority of students surveyed in this study were unmarried and without children, and likely to have similar social roles and obligations. The last theory on gender differences in service utilization suggests that the mental health care system has a preference for treating mood or anxiety disorders (more commonly presented by women), rather than substance abuse disorders (more commonly presented by men). Although participants of this study were not specifically asked their reasons for seeking help, gender was related to the types of mental health problems experienced. For example, two thirds of the students who reported having had a previous diagnosis of depression were female. As well, information collected for the Student Health Needs assessment showed that male students were more likely than female students to frequently exhibit behaviors indicative of substance abuse disorders,

such as drunk driving, injuring oneself or another after drinking, passing out or being charged with impaired driving. However, it is important to note that the relationship between gender and service use remained, even after adjusting for a previous diagnosis of depression.

As long as the reasons why females tend to use services more than males remain unknown, health professionals providing these services to university students should not assume that those seeking services are the only ones who need help.

5.2 Discussion of Hypotheses and Non-Significant Variables

Providing partial support for our first hypothesis, many characteristics found to be related to service utilization in general population samples, such as perceived need, gender, suicide ideation, a history of depression and presence of a family doctor were associated with students' health service use for mental or emotional reasons in the present study.

On the other hand, there were a number of variables that have been associated with use of mental health service in the general population, that were not statistically significant in the student model. For example, enabling factors, such as living arrangement, number of dependents and number of hours of paid work were not associated with students' use of services. The lack of association between these variables and service use suggests that university students' decision to seek help from a professional is not influenced by proximity/accessibility to services or scheduling and time constraints. It is nevertheless a possibility that other enabling factors, not examined in this study, may influence service utilization. For example, measures of socioeconomic status, such as parental education level or average family income, were

not examined. Given research that shows a possible relationship between SES and the inclination to see a physician,[35] this should be examined in future research.

Despite research showing the influence of race and ethnicity on mental health-related service utilization,[44, 45] neither international student status, nor aboriginal status contributed to students' service use. Students' age was also unrelated to students' use of mental health-related services. Given the narrow age range of the university student population, it is not surprising that older students are similar to younger students in terms of their help-seeking behaviors.

The second hypothesis, that several characteristics specific to university students (e.g. college, number of years in university, career uncertainty and registration status) would be associated with students' health service use for mental/emotional reasons, was not supported. Interestingly, academic performance, which was identified as the top source of stress among the students surveyed, also failed to predict students' use of services. This means that although many students are likely experiencing high levels of mental distress over this issue, they are no more likely to seek the help of a professional to talk about their difficulties than students who are not experiencing this concern.

Given that many students identify stress as a leading health concern, and that finances are often specified as a major source of that stress, it was surprising that neither current levels of stress nor financial concerns were predictors of students' use of services for mental/emotional reasons. These findings, which contradict critics of Andersen and Newman who contended that stress was underemphasized in service use literature, could be due to several possibilities. On the one hand, certain types of stress, such as financial stress, time pressures and long working hours, although common among university students, may not necessarily be the types of stresses that cause serious mental health

problems. On the other hand, some research has concluded that these types of stressors can cause serious academic and physical health consequences.[31, 32] Alternatively, these findings could mean that support for these types of problems may not be widely accessible or available to students, or that the students may simply not be aware that there is help for them.

5.3 Other Factors Not Examined

Although many variables were considered in this study, other factors that may influence service use for mental/emotional reasons among university students were not examined. For example, students' beliefs and attitudes towards mental health might affect what they view as a valid reason for seeking help. Similarly, attitude towards health professionals has been found to affect the decision to seek help in the general population,[17] and may therefore be a factor to consider within the student population. Most of the factors not examined in this study are psychosocial and complex in nature and therefore much more difficult to measure accurately. Future studies that examine these issues would therefore need to have a qualitative approach to truly capture their relationship to service use for mental or emotional reasons.

Research suggests that social support may be another important factor influencing whether young people with depression seek professional help. A study conducted recently in the United States examined what social network characteristics differed between depressed, African-American adolescent males in treatment and those who were not in treatment.[78] The study found that those in treatment generally had smaller social networks and perceived that their friends would find mental health services useful in addressing individual needs. Family members were also found to influence whether the depressed youth were in treatment or not. Although this study was American and

did not examine university students, it nevertheless highlights the importance of social factors and how they might interact with a diagnosis of a mental disorder.

5.4 Study Limitations and Recommendations for Future Research

Several limitations to the present study must be noted. First, the dependent variable question asked about "mental health or emotional issues", which may be interpreted in a variety of different ways. The manner in which the question was asked may not have captured those students who did not perceive certain problems as emotional or mental health related. An example of this would be a student who was having stress-related tension headaches, and who perceived this problem as physical, rather than psychosomatic in nature. As a result of classifying their headaches as purely physical, they would not have indicated talking to a health professional regarding a mental health or emotional issue. This may have resulted in the proportion of students who had discussed a mental/emotional issue being underestimated.

Also related to the dependant variable, the issue of severity was not addressed. The author acknowledges that mental health problems range in severity, and that the severity experienced by the student will influence their choice to seek help. Future studies may benefit from capturing the concept severity by measuring the use of services as a continuous variable, or by using other data sources and statistical techniques to analyze the influence of severity.

A completely random sample was not possible due to budget constraints. Instead, a convenience sample based on a random list of classrooms was used to obtain participants. Participation was ultimately dependent upon professors' consent and the willingness of students. To ensure true representation from the university student

population, future research would benefit from using a random sampling strategy and including students from numerous universities.

The cross-sectional nature of the study is a third limitation. This type of design captures static information from a single cohort of students, and therefore, may not represent other university students in another time. In the future, a longitudinal design would better address the possibility of changing predictors of service utilization for mental health/emotional reasons among university students. In addition, because the temporal relationship of the variables examined in this study cannot be known, no causal relationships can be inferred.

A fourth limitation is the reliance on self-report data. Although problems validating the accuracy of self-reported information regarding utilization of services have been noted,[79] the difference between self-reported and actual utilization is reported to be very small,[80] particularly if the participants are younger and relatively infrequent users of services.[81] To lessen the likelihood of recall errors, a time frame of one year was selected for the question related to services use. Nevertheless, future studies might consider using data from other sources, such as medical records.

The survey used was designed primarily for a broad-based needs assessment and therefore covered topics outside the scope of this study. The length of the questionnaire needed to be kept short enough so as to not discourage students from participating. Consequently, information on many additional correlates of service utilization was not collected. A study carried out solely for the purposes of examining factors would be able to explore a more exhaustive list of variables.

Finally, although using the Andersen and Newman model of health service utilization as a framework makes this study comparable to many others, it may be

beneficial to examine the university student population using a different framework, such as a behavioral theoretical model. The absence of *enabling factors* from the student-specific model proposed by this study, suggest that the Andersen and Newman model may not appropriately describe the factors that influence students' use of services.

5.5 Conclusions and Practical Applications

University students are a unique population in many respects. They have a demographic structure that is different from the general population, and face many different types of mental health challenges. The results of this study identified both similarities and differences between university and general population samples in the factors associated with seeking professional help for mental or emotional reasons. *Need factors* remained important for students, especially perceived need for professional help for emotional problems. *Predisposing factors*, such as gender and a previous depression diagnosis also remained associated with service utilization. However, in contrast to models that describe service use in the general population, *enabling factors*, such as the number of dependents and living arrangement, were not important predictors of service utilization in the student population. Although many student-specific factors were examined in this study, the only significant factor not previously seen in other models was sexual assault victimization.

In addition to mental health and service utilization, the larger SHC health needs assessment conducted parallel to this study examined a broad range of health topics including drug and alcohol use, sexual health, sexual assault, nutrition and physical fitness. The results of this needs assessment were disseminated in several ways. A final report was released to the staff at the SHC and several oral presentations were made to various university groups, including the Dean's Council, Student Enrollment and

Services Division, and the University of Saskatchewan Student's Union. A presentation was also given to a group of health educators who work for various universities across Canada. In conjunction with these groups, several recommendations have been made regarding improving the health of university students. Among several others, recommendations for improving international student access to general health services, reducing the negative consequences of drinking, emphasizing health education on mental health, and the formation of a "Healthy Campus Committee" are some of the initiatives that have been proposed.

The model described in this study will assist health service providers that work with the university population to better understand the decision making process that takes place when a student experiences mental health challenges. A unique student-model will also help to guide professionals in designing their outreach strategies and health education campaigns. In order to maximize the value and success of such programs, the services offered by universities need to be as specific as possible to their target population. The development of the model in this study can be viewed as a first step towards achieving the goals set out by health professionals that serve the university student community.

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APPENDIX A – Student Health Needs Survey

Student HEALTH centre

STUDENT HEALTH NEEDS ASSESSMENT SURVEY

INSTRUCTIONS:

The following questions ask about various aspects of your health.

Please select only one response, unless otherwise instructed.

Please use #2 pencil, making sure to fill in the oval completely.

Erase cleanly any answer that you wish to change.

CONFIDENTIALITY:

All your answers will remain confidential.

Please DO NOT write your name anywhere on this survey, so that your identity will remain anonymous.

Your participation is completely voluntary.

---

1. What is your age in years? 1) 19 & under 2) 20 3) 21 4) *22* 5) *23* 6) *24 - 30* 7) *over 30*

1) 2) 3) 4) 5) 6) 7)

(for office use only)

2. What gender are you? 1) Male 2) Female

3. Are you: 1) Undergraduate 2) Graduate

4. What College are you registered in?

1) Agriculture
2) Arts & Science
3) Commerce
4) Dentistry
5) Education
6) Engineering
7) Kinesiology
8) Law
9) Medicine
10) Nursing
11) Pharmacy & Nutrition
12) Physical Therapy
13) Veterinary Medicine
14) Graduate Studies & Research
15) Unclassified

5. How many years (including this year) have you attended a university?

1)One **2)**Two **3)**Three **4)**Four **5)**Five or more

6. Are you: 1) Full-time 2) Part-time

7. What is your current living arrangement?

1) University Residence
2) Non-university housing (with parents)
3) Non-University housing (with other family)
4) Non-University housing (without family)

8. Do you have any dependents ? 1) Yes 2) No

9. Are you classified as an international student?

1) Yes
2) No

10. Do you consider yourself an Aboriginal person?

1) No
2) Yes, Indian
3) Yes, Inuit
4) Yes, Metis

11. What is your marital status?

1) Married/Common Law
2) Single
3) Widowed
4) Divorced

12. What is your Body Mass Index?

(See separate sheet to calculate your BMI.)

1) <18.5
2) 18.5 - 24.9
3) 25 - 29.9
4) 30 - 34.9
5) 35 - 39.9
6) 40 or greater

13. On average, how many hours a week do you work for pay (during the school year)?

1) 0 hours
2) 1-9 hours
3) 10-19 hours
4) 20-29 hours
5) 30-39 hours
6) 40 hours
7) more than 40 hours

14. What was your academic average when you graduated from Grade 12?

1) 50-59%
2) 60-69%
3) 70-79%
4) 80-89%
5) 90-100%

15. What is your current approximate academic average?

1) below 50%
2) 50-59%
3) 60-69%
4) 70-79%
5) 80-89%
6) 90-100%

16. Are you registered as having a disability?

1) Yes *If **'Yes', please fill in all** that apply*
2) No

1) Visual Impairment (not correctable by glasses)
2) Hearing Impairment
3) Mobility Impairment (e.g. use wheelchair)
4) Learning Disability
5) Attention Deficit Disorder (ADD)
6) Acquired Brain Injury
7) Other (please specify) _____

17. In general, how would you rate your **current** overall level of stress?

1) Overwhelmed
2) Highly stressed
3) Moderately stressed
4) A little stressed
5) Not at all stressed

18. Please rank your **top 3 sources** of stress in order (starting with 1 being the most stressful).
(Leave blank any answers that are not in your top 3).

1st	2nd	3rd	
			1) Finances
			2) Family relationships
			3) Interpersonal relationships
			4) Illness/Injury
			5) Living arrangements
			6)Adjustments to the University setting
			7) Class load or scheduling
			8) Academic Performance
			9) Career Uncertainty
			10) Other _____

19. How many times within the past 12 months have you seen or talked on the telephone to a health professional regarding an emotional or mental health issue?
Note: This includes any health professional (e.g. Doctor, nurse, counselor, psychologist, social worker...)

1) Zero **2)** One **3)** Two **4)** Three **5)** Four **6)** 5-10 **7)** Over 10

1) 2) 3) 4) 5) 6) 7)

(If you marked 'Zero', please skip to question #21)

20. Whom did you see or talk to? *(Please mark **all** that apply)*

1) Family doctor or general practitioner
2) Psychiatrist
3) Psychologist
4) Nurse
5) Social Worker
6) Other counselor
7) Other _____

21. Have you **ever** been diagnosed with depression?

1) Yes
2) No **(if 'No', skip to question #28)**

22. Are you currently under the care of a health care professional or counselor for depression?

1) Yes
2) No

23. Are you currently taking a prescription medication for depression? 1) Yes 2) No **(if 'No', skip to question #27)**

24. Was this medication first prescribed to you by a University of Saskatchewan Student Health Centre doctor? 1) Yes 2) No

25. Do you take this medication as prescribed by your doctor?

1) Yes **(If 'Yes' skip to question #28)**
2) No

26. If not, please indicate **all of the following that apply**

1) I didn't think I needed it
2) I couldn't afford to fill the prescription
3) The medication made me feel ill (i.e. side effects)
4) I took it for a while, but quit because I started to feel better
5) I took it for a while, but quit because I *did not* get better
6) Other, (please specify) _____

27. Are you currently taking a **non**-presciption medication for depression?

1) Yes 2) No

(for office use only)

28. Have you ever attempted suicide? 1) Yes 2) No

29. Since starting university, have you contemplated suicide to the point where you had a specific plan or made specific preparations for suicide? 1) Yes 2) No

30. At this time, do you think you need professional help for emotional problems? 1) Yes 2) No

31. Please rank your **3 most common methods** of dealing with stress *(with 1 being the most common).* Leave blank any answers that are not in your top 3.

1st 2nd 3rd

1) Go to sleep
2) Have a cigarette
3) Take a bath or shower
4) Drink alcohol
5) Talk to a friend or relative
6) Eat
7) Use illicit drugs
8) Exercise
9) Watch TV/Listen to music/Read
10) Use relaxation exercises
11) Nothing
12) Sexual activity
13) Other (please specify) _____

32. If you have financial debt, please circle the most appropriate answer.
(If you do not have financial debt please skip to the next question.)
"I have financial debt and...
- feel confident I will be able to pay it back
- am worried about being able to pay it back
- feel extremely stressed about being able to pay it back

33. Please rate your agreement with the following statement:
"I am certain about my career path"
1) Strongly Disagree 2) Disagree 3) Agree 4) Strongly Agree

34. Within the past 12 months, with how many partners have you had oral, vaginal,or anal sex?
1) Zero **(if 'zero', skip to question #43)**
2) one
3) two
4) 3 - 5
5) 6-10
6) more than 10

35. Over the last 12 months did you or your partner(s) always use a condom or dental dam during:

	Yes	No	N/A
1) Vaginal intercourse			
2) Anal intercourse			
3) Oral Sex			

36. Have you ever been diagnosed with **any** of the following Sexually Transmitted Infections (STI)?
*(Please select **all that apply**).*
1) Chlamydia
2) Genital Warts (HPV)
3) Hepatitis B
4) Gonorrhea
5) HIV/AIDS
6) Herpes
7) Syphilis

37. Prior to having oral, vaginal, or anal intercourse with a new partner, do you always discuss each other's sexual history or risks for STI?
1) Yes
2) No

If you or your partner are presently trying to get pregnant, have had a vasectomy or tubal ligation, or you have not had vaginal intercourse, please skip to question #43.

38. The last time you had sexual intercourse, please indicate which method(s) of contraception **you and/or your partner used.**
*(Please select **all that apply**).*
1) No contraceptive use
2) Male condom
3) Female condom
4) Diaphragm/cervical cap/sponge
5) Spermicide (e.g. foam)
6) Fertility awareness (calendar, mucus, body temp.)
7) Withdrawal
8) IUD (Intra Uterine Device)
9) Depo-Provera ("the shot")
10) Oral contraceptive pill ("the pill")
11) Emergency Contraception (i.e. morning after pill)

If you are male, please skip to question # 42.

39. How many times have you used the Morning After Pill?

0 1 2 3 4 5 or more

40. Please list the number of times you have become pregnant in an unplanned way.

0 1 2 3 4 5 or more

(If you answered '0', please skip to question #43.)

41. What was the outcome of the pregnancy(ies)? *(Please indicate the number of each).*

1) Parenting	0	1	2	3	4	5 or more
2) Adoption	0	1	2	3	4	5 or more
3) Therapeutic Abortion	0	1	2	3	4	5 or more
4) Miscarriage	0	1	2	3	4	5 or more

42. If you are male, please list the number of times a partner of yours has become pregnant by you in an unplanned way.

0 1 2 3 4 5 or more

43. How would you describe yourself?

1) Heterosexual
2) Gay/Lesbian
3) Bisexual
4) Transgendered
5) Unsure

44. Since you started University, have you been sexually assaulted *(defined as any unwanted act of a sexual nature, ranging from touching, fondling, or kissing to forced sexual intercourse)?*

1) Yes
2) No **(If 'No', please skip to question #47.)**

45. Were you sexually assaulted by any of the following individuals?

	Yes
1) Steady boyfriend/girlfriend	
2) Ex-Partner	
3) Date or Acquaintance	
4) Stranger	
5) Family member or relative	
6) Work colleague	
7) Work supervisor or employer	
8) Academic instructor(teacher or professor)	
9) Other _____	

46. Did you report or tell any of the following people about it?

	Yes
1) City Police	
2) Campus Police	
3) Sexual Assault Centre	
4) Student Help Centre	
5) Friend	
6) Family member	
7)Medical professional outside of University	
8) Student Health Centre	
9) Women's Centre	
10) Student Counselling Services	
11) Clergy	
12) Other _____	

47. Do you perform regular breast self-examination (females) or testicular self-examination (males)?

1) Yes
2) No

48. If you are female, do you get a Pap test every **year**?

(If you are male, please skip to question #50.)

1) Yes
2) No

49. Have you ever had an abnormal Pap smear?

1) No
2) Yes, and I followed up as recommended by my doctor
3) Yes, but I did not follow up as recommended by my doctor

(for office use only)

50. Which of the following describes your smoking behavior?

1) I have never smoked
2) I am ex-smoker
3) I smoke 1-5 cigarettes/day
4) I smoke 6-25 cigarettes/day
5) I smoke >25 cigarettes/day

51. Have you consumed alcohol in the past year?
1) Yes 2) No
(If 'No', please skip to question #53.)

52. Please indicate how often you have experienced the following as a result of drinking **alcohol,** during this school year:

	Never	Once	A Few Times	Frequently
1) Missed a class or work due to hangover/drinking				
2) Driven after drinking any amount of alcohol				
3) Been charged with impaired driving				
4) Had sexual relations that you regretted				
5) Had unprotected sex				
6) Physically injured yourself				
7) Physically injured another person				
8) Forgotten where you were or what you did				
9) Generally did something you later regretted				
10) Passed out				

53. **If you have never used chewing tobacco or recreational drugs, please skip to question #57.**

During this school year, how often have you used the following:

(mark one for each row)	Never	Once	A Few Times	Regularly
1) Cannabis (marijuana)				
2) Narcotics (Morphine, codeine, methadone, heroin)				
3) Amphetamines (speed)				
4) Cocaine				
5) LSD (acid)				
6) Hallucinogens (mushrooms)				
7) Anabolic Steroids				
8) Ecstasy				
9) Ritalin (not prescribed for you)				
10) Chewing Tobacco				
11) Crystal Meth				
12) GammaHydroxy Butyrate (GHB)				
13) Other, (please specify)				

54. Please indicate how often you have experienced the following as a result of **taking recreational drugs** during this school year:

(mark one for each row)	Never	Once	A Few Times	Frequently
1) Missed a class or work				
2) Had sexual relations that you regretted				
3) Had unprotected sex				
4) Physically injured yourself				
5) Physically injured another person				
6) Forgotten where you wre or what you did				
7) Generally did something you later regretted				
8) Passed out				

55. Have you ever used injection drugs in your lifetime?
1) Yes 2) No

56. Have you ever shared needles?
1) Yes 2) No

57. At this time do you think you need professional help for substance abuse?
1) Yes 2) No

58. On how many of the past 7 days did you...
(Please fill in an answer for each activity)

	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
1) Participate in vigorous exercise for at least 20 minutes (jogging, aerobics, fast swimming, strenuous sports, bicycling up hill...)								
2) Participate in moderate exercise for at least 30 minutes (walking, light sports, dancing, bicycling on level ground...)								
3) Participate in light exercise for at least 60 minutes (light walking, stretching, gardening...)								
4) Do exercises to strengthen or tone muscles (push-ups, sit-ups, weight lifting...)								
5) Get enough sleep so that you felt rested the next day								

59. During the past 7 days, would you say that you have been:
- 1) Less active than usual
- 2) About as active as usual
- 3) More active than usual

60. How do you describe your weight?
- 1) Very underweight
- 2) Slightly underweight
- 3) About the right weight
- 4) Slightly overweight
- 5) Very overweight

61. Please fill in the bubble that best applies to you:
- 1) I am not trying to do anything about my weight
- 2) I am trying to maintain the same weight
- 3) I am trying to lose weight
- 4) I am trying to gain weight

62. Within the last 30 days, did you do any of the following?
(Select all that apply)
- 1) Exercise to lose weight
- 2) Diet to lose weight
- 3) Make yourself vomit
- 4) Take laxatives to lose weight
- 5) Take diet pills to lose weight
- 6) I didn't do any of the above

63. Do you have an eating disorder (e.g. Anorexia Nervosa, Bulimia...)? 1)Yes 2)Probably 3)Maybe 4)No 5)Not Sure

64. On average, how often do you eat the following foods? (For each item, select the most appropriate column).

	More than once per day	Once a day	A few times per week	Seldom/Never
1)Red Meat/Poultry/Seafood				
2) Meat Alternates (eggs, beans, Soy products, nuts, seeds)				
3) Protein Supplements and Drinks				
4) Milk/yogurt/cheese				
5) Soy milk/Soy cheese				
6) Vegetables				
7) Fresh Fruit/fruit juice/dried fruit				
8) Vitamin/Mineral Supplement				
9) Fried foods (fast foods)				
10) Snack foods (chips, popcorn, Pretzels, chocolate				
11) Soft Drinks (any type)				

65. How often do you eat breakfast? 1) Rarely or Never 2) 1-2 times per week 3) 3-4 times per week 4) 5-6 times per week 5) Every day
1) 2) 3) 4) 5)

(for office use only)

66. Do you currently have a regular family doctor or primary care nurse (PCN)?

1) Yes
2) No **(if 'No' please skip to question #69.)**

67. Is your family doctor/PCN in Saskatoon?

1) Yes
2) No**(if 'No' please skip to question #70)**

68. Does your family doctor/PCN work at the Student Health Centre?

1) Yes
2) No

69. Do you believe it is (or would be) worthwhile to have a regular family doctor or primary care nurse?

1) Yes
2) No

70. Do you suffer from a chronic medical condition?

1) Yes
2) No

71. Please indicate if you have seen any of the following **in the past year.** (Please select **all** that apply).

1) Student Health Centre family doctor or nurse
2) Walk-in clinic/family doctor
3) Specialist doctor
4) Emergency Department doctor
5) Student Counseling Services counselor
6) Other Counselor
7) Planned Parenthood / or similar
8) Chiropractor
9) Massage therapist
10) Alternative care provider (e.g. Naturopath, herbalist, acupuncture, Reiki, etc.
11) Have not needed to consult with anyone regarding a health concern

72. With regards to the most recent time you were ill, please indicate the first thing you tried. (Please select only **one** answer.)

1) No treatment/Self treatment
2) Over-the-counter remedies
3) Herbal or other alternative treatments
4) Family doctor (appointment)
5) Family doctor (walk-in)
6) Assessment at my specialist doctor's office
7) Walk-in medical clinic(not family doctor)
8) Primary Care Nurse
9) Planned Parenthood / or similar
10) Emergency Department
11) Student Health Centre
12) Student Counselling
13) Other (please specify) _____

73. With regards to your answer to question 72, please indicate what happened next. (Please select only **one** answer.)

1) No further treatment
2) Self treatment/Over-the-counter remedies
3) Family doctor (appointment)
4) Family doctor (walk-in)
5) Assessment at my specialist doctor's office
6) Walk-in medical clinic (i.e. not your family doctor)
7) Primary Care Nurse
8) Planned Parenthood / or similar
9) Emergency department
10) Student Health Centre
11) Student Counselling
12) Other (please specify) _____

74. Would you say that this is typical in how you deal with an illness?

1) Yes
2) No

75. If you did not self-treat or consult with your family doctor, please select the top reason why you sought out medical attention where you did:

1) Ease of access/convenience
2) I had seen this health care provider before
3)Unable to access my usual/preferred health care provider
4) Unaware of other places where I could get medical care
5) Other (please specify) _____

76. If you did not visit the Student Health Centre, please indicate your main reason why. (Select only **one** answer).

1) I've never heard of it before
2) I've heard of it but didn't know it was a medical clinic
3) I've heard of it but don't know where it is
4) I thought I had to pay for the services at the Student Health Centre
5) I didn't realize that the Student Health Centre had a "walk-in" service
6) I tried to access the Student Health Centre but couldn't be seen that day
7) I sought medical attention outside of Student Health Centre hours
8) Lack of female health care providers at the Student Health Centre
9) Other (please specify) _____

77. How would you rate your exposure to the Health Education services & programs provided by the Student Health Centre and The Student Health Initiatives Program (SHIP)?
(This may include reading pamphlets and /or posters, attending information sessions...)

1) None
2) Some
3) A lot
4) I have never heard of these before

78. Now that you are aware that the Student Health Centre provides medical services on campus, would you use its services?

1) Yes
2) No
3) I already do

The purpose of this survey is to assist the Student Health Centre in designing effective health education/promotion programs and to improve the services offered. It is designed to assess the general health behaviors of University of Saskatchewan students, and to identify their specific needs.

As well, some of the information collected will be analyzed for the completion of a Master's Thesis in the Department of Community Health & Epidemiology (College of Medicine.)

Thank you for taking the time to complete this survey!
We sincerely appreciate your participation.

APPENDIX B – Written Explanation of Study for Students

Feedback Sheet
(Please retain for your records)

Title: The University of Saskatchewan Student Health Centre Needs Assessment.

Researchers:

Tyson Mack (M.D.)
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U of S Student Health Centre
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Survey: The survey that you have chosen to fill out contains questions pertaining to different areas of health, including drug/alcohol use, sexual health, nutrition/exercise, service utilization, mental health, as well as some demographics. Some examples include: *"In general, how would you rate your overall level of stress?", "The last time you had sexual intercourse, please indicate which method(s) of contraception you used"* and *"Have you ever used injection drugs in your lifetime?"*. The information obtained from this survey will be used to examine the health status and behaviors of U of S students, to guide the clinical and health education services of the Student Health Centre. Some of the information will be used toward the completion of a Master's thesis project. All information reported will be in aggregate form.

If you feel upset by any of the questions on this survey, please contact Student Counseling Services at 966-4920 or the Student Health Centre at 966-5768.

Please note that completing this survey implies consent. If you have any questions regarding your rights as a participant in this study, please contact the Office of Research Services at 966-8576.

APPENDIX C – Copy of Ethical Approval

JAN 1 6

UNIVERSITY OF SASKATCHEWAN
BEHAVIOURAL RESEARCH ETHICS BOARD
http://www.usask.ca/research/ethics.shtml

NAME: Tyson Mack (Angela Brown) **BSC#:** 02-749
Student Health Centre

CO-INVESTIGATORS: Sheila Watts

DATE: January 9, 2003

The University Advisory Committee on Ethics in Behavioural Science Research has reviewed the Application for Ethics Approval for your study "University of Saskatchewan Student Health Centre Needs Assessment: Factors That Influence Health Service Utilization for Mental Health or Emotional Reasons Among University Students" (02-749).

1. Your study has been APPROVED subject to the following minor modifications:

    - Please describe the recruitment process in more detail. Will the participants be completing the survey during class time? Will there be procedures that ensure the participants' privacy during the completion of the survey? How will the students, who do not consent to participate, spend the 30 minutes?

    - A written Introductory Letter should be provided with the survey that includes all of the elements of a consent form (e.g., title of study, name of researchers and contact information, a sample of the kinds of questions asked in the survey, information about counselling services should the participant feel upset by the questions asked, the phone number of the Office of Research Services should the participants have questions about their rights, a statement that completing the survey implies consent...). The participants should retain the Introductory Letter for their records.

2. Please send one copy of your revisions to the Office of Research Services for our records. Please highlight or underline any changes made when resubmitting.

3. The term of this approval is for 5 years.

4. This letter serves as your certificate of approval, effective as of the time that the requested modifications are received at the Office of Research Services. If you require a letter of unconditional approval, please so indicate on your reply, and one will be issued to you.

5. Any significant changes to your proposed study should be reported to the Chair for

Office of Research Services, University of Saskatchewan
Kirk Hall Room 208, 117 Science Place, Saskatoon SK S7N 5C8 CANADA
Telephone: (306) 966-8576 Facsimile: (306) 966-8597 http://www.usask.ca/research/

Committee consideration in advance of its implementation.

6. This approval is valid for five years on the condition that a status report form is submitted annually to the Chair of the Committee. This certificate will automatically be invalidated if a status report form is not received within one month of the anniversary date. Please refer to the website for further instructions: http://www.usask.ca/research/behavrsc.shtml

I wish you a successful and informative study.

Dr. Dorothy Forbes for
Dr. Valerie Thompson, Chair
Behavioural Research Ethics Board

VT/ck

APR 0 4 20

UNIVERSITY ADVISORY COMMITTEE
ON ETHICS IN BEHAVIOURAL SCIENCE RESEARCH

NAME: Tyson Mack (Angela Brown)
Student Health Centre

BSC#: 02-749

DATE: March 31, 2003

The University Advisory Committee on Ethics in Behavioural Science Research has reviewed the modifications to the Application for Ethics Approval for your study "University of Saskatchewan Student Health Centre Needs Assessment: Factors That Influence Health Service Utilization for Mental Health or Emotional Reasons Among University Students".

1. The modification(s) to your study has been APPROVED.

2. Any significant changes to your study should be reported to the Chair for Committee consideration in advance of its implementation.

3. The term of this approval remains five years from the original approval date.

4. In order to maintain ethics approval, a status report must be submitted to the Chair for Committee consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.usask.ca/research/ethics.shtml.

I wish you a successful and informative study.

Dr. Valerie Thompson, Chair
University of Saskatchewan
Behavioural Research Ethics Board
C/o Office of Research Services

VT/ck

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