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# International and Domestic Student Health- Information Seeking and Satisfaction

Stacy Theodora Austin  
*Portland State University*

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International and Domestic Student Health-Information Seeking and Satisfaction

by

Stacy Theodora Austin

A thesis submitted in partial fulfillment of the  
requirements for the degree of

Master of Science  
in  
Communication

Thesis Committee:  
Jeffrey Robinson, Chair  
Lauren Frank  
Christopher Carey

Portland State University  
2013

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## **Abstract**

This study examines two groups –international and domestic students at Portland State University (PSU) – in terms of their motivations to seek university-health services, and their satisfaction with university-health services. The Theory of Motivated Information Management (W. A. Afifi & Weiner, 2004) served as the foundation for this study to examine the preferences of students in terms of the ways they seek information about their health concerns. Differences in international and domestic students' anxiety, efficacy, and satisfaction with physicians were supported. International students reported more anxiety than domestic students. Domestic students reported being more efficacious than international students when talking to a medical provider about a current medical issue. Also, international students reported higher satisfaction with a medical provider at their last university health services visit. First, subjects were asked if they currently have a medical concern for which they might consider consulting a physician at PSU health services. If this scenario applied, subjects were asked to rate a variety of possible, theoretically informed motivations for seeking medical information by consulting a physician, to test the Theory of Motivated Information Management. Second, subjects were asked if they have previously consulted a physician at PSU health services. If this scenario applied, subjects were asked to provide satisfaction ratings of the physician and staff. The results contribute to the understanding of information-seeking processes and support the theory's effectiveness in this situation, explaining where international and domestic students are significantly different in regard to their responses.

### **Dedication**

This work is dedicated to my parents, Raymond and Chom Nan Austin, who are reflected in the sun and the moon<sup>1</sup>.

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<sup>1</sup> “Even though I cannot see you, I am certain that your heart is here. If you find that you miss me, always look at the sun that rises [in the morning] and the moon that rises in the evening. Whatever the time, I will be reflected in the sun and the moon. And in our next life, let us meet in the pure land of Eagle Peak. Nam-myoho-renge-kyo.”

Daishonin, N. (1999). Letter to the Lay Nun of Ko: June 16, 1275. In N. Daishonin (Ed.), *The writings of Nichiren Daishonin* (pp. 595-597). Tokyo: Soka Gakkai.

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## **Chapter 1: Literature Review**

This chapter reviews prior research relevant to the present thesis, including that regarding international students enrolled in higher education, the importance of university health services for international and domestic students, student health-information seeking, and student satisfaction with health services.

### **International Students in the United States**

The United States is a popular destination for international students, with 723,277 enrolled in higher education during the 2010-2011 academic year (NAFSA, 2012).

International students have an important place in college campuses, both cross-culturally and financially. Financially, the Association of International Educators conservatively estimates that foreign students and their dependents contributed conservatively \$20.23 billion to the U.S. economy during the 2010-2011 academic year (NAFSA, 2012). In Oregon alone, there are a total number of 8,929 foreign students who contributed approximately \$273.6 million total contribution from tuition/fees and living expenses over the last academic year (NAFSA, 2012).

Cross-culturally, immersion in another country has multiple benefits, including breaking down negative stereotypes (Hofstede, 2001) and reducing world conflict by developing a sense of common humanity (Huntington, 1992). These benefits come with difficult times. International students experience stress from migration and culture shock (Gunn, 1988). Numerous environment-related factors (e.g., discrimination) contribute to international student depression (Jung, Hecht & Chapman Wadsworth, 2007). Despite these concerns, most international students do not use university health services regularly

(Miller & Harwell, 1983). This raises the question of why international students do not seek health-information provided by a physician at university health services.

### **Importance of University Health Services**

University-health-service physicians act as primary care providers for college students, addressing both episodic and long-term illnesses. As many as 80 percent of international and domestic students will use the services during their academic careers (Hrabowski, 2004).

University health services provide a basic consumer need, as well as a tool for building college communities through the provision of healthcare and (health) education (Hrabowski, 2004). University health services are also a support system for academic services. University health services have drastically evolved with the needs and requirements of the students they serve since the early 1800s (Komives, Woodard & Associates, 2003). University health services are important because, since their beginning, they have helped students remain in and/or return to school (Benjamin & Robinson, 1998; Swinford, 2002). Initially, concerns primarily involved immunizations and hygiene, and now services such as acupuncture, diet discussion, and general health check-ups may be available to students (Turner & Hurley, 2002; Patrick, 1992). The changes made, and additional resources available, have had a positive impact on school performance, overall college student experience, and the student retention rates (Kitzrow, 2003). More recently, university health services nationwide are struggling to balance decreased state funding and student service fees without sacrificing quality of care (Canel & Anderson Fletcher, 2001).

Accessible university health services continue to be important for students' success

with new college pressures, such as additional stress caused by competition for college beginning at an earlier age (Hoff, 2002), increased tuition costs, and interacting with diverse populations (Cantor, 2003). The American College Health Association (ACHA) collects data on mental-health concerns of college students nationwide. Data from spring 2008 analyzed the results of 83,070 surveys from students attending 113 different North American universities, finding that 16.1 percent experienced depression and 9 percent reported having seriously considered attempting suicide (ACHA, 2009). These students listed various impediments to their academic performance such as: stress, sleep difficulties, depression, and alcohol use. They found that 43 percent felt so depressed it was difficult to function, 62.1 percent felt hopeless, 78.8 percent of students had felt sad, and 93.7 percent felt overwhelmed by all they had to do. This increased stress has led to suicide being the second leading cause of death for college students, after accidents (Del Pilar, 2009).

### **Importance of University Health Services for International Students**

Along with the regular stressors of being in college, international students experience additional stressors. Hwang and Ting (2008) stated that there is currently a limited understanding of how culture-related factors contribute to the mental-health and stress of individuals. One of the salient research areas to expand is the study of acculturation in specific ethnic groups (Berry, 2005). Acculturation has been defined as the dual process of cultural and psychological change that takes place while adapting to cross-cultural contact between two or more cultural groups and their members (Berry, 2005). Acculturation research has been done on many different ethnic groups. Though acculturation research has rarely focused on international students, it is applicable and

important because of how many different ethnic groups international students embody.

There are significant differences in how individuals and groups engage in the acculturative process and, therefore, how they adapt psychologically. Extensive changes required in intercultural contact can result in the potential for stress-inducing conflict.

The stress resulting from the acculturation process is known as acculturative stress (Berry, 2000). Berry (2005) defines acculturation stress as the stress reaction in response to life events that are rooted in the experiences of acculturation.

### **Stressors**

Not a homogeneous group, international students differ in many ways, including coming from different cultural and ethnic backgrounds, speaking different native languages, having various levels of English fluency, and sharing different support systems in the U.S. Yet, once here, they all experience cultural differences and must adapt to the American culture and social norms. International students experience similar stressors as do domestic students, but at a greater level of intensity (Burns, 1991).

Foreigners (i.e. international students) and health-service personnel both report language as a primary problem when communicating in the physician's office, and this problem does correlate to lower satisfaction during patient-provider interaction (Vogel, 1986).

International students face various communication problems including language barriers. Some students do speak English as their native language, but majority do not. Regardless of English fluency, all international students must attempt to adapt to the local accent and language idioms.

Along with facing cultural stressors (e.g. difficulties associated with living away from home), all international students face additional scholastic and immigration

requirements. To qualify for J-1 or F-1 student visa status, international students must maintain a full-time status each term and passing grades (Portland State Office of International Affairs, 2011). If international students are unable to meet requirements, they may be forced to leave the country (Ng, 2006). Since the terrorist attacks of September 11<sup>th</sup> 2001, international students in the United States have faced more restrictions, increased immigration fees, and reported disrespectful treatment by U.S. officials in their home countries (Altbach, 2004; Chandler, 2004; Mueller, 2009). Since all U.S. student visas require the provision of documentation showing sufficient financing for at least one year of study including living expenses and tuition, current international students that choose to study in the U.S. may be more privileged than students who choose to study in other foreign countries (e.g., Canada and Australia).

### **Reactions to stressors**

It is important to study international students and their U.S. healthcare because the current literature indicates that they experience more stress than domestic students, are more likely to isolate themselves, have lower levels of satisfaction with their physician because of language barriers, and are less likely to utilize university health services.

There are distinct differences in perceptions of academic stressors, and reactions to stressors between domestic and international students (Misra & Castillo, 2004). While domestic students face emotional stress being away from home, international students have more emotional stress overall and in healthcare matters than domestic students, because they are away from their native countries (Ebbin & Blankenship, 1986). Also, international students must find a way to deal with their health problems in an unfamiliar environment with different cultural norms (Cheng, 2004). As they are adapting to a

different cultural pattern, where rules and norms of health services may differ from their own culture, international students may be more uncomfortable and/or uncertain when visiting a health center for a medical concern (Albert & Triandis, 1994). Low perceived English-language skill and weak social support networks have a negative effect on the stressfulness of academic situations, because they tend to make situations more stressful (Wan, Chapman & Biggs, 1992). International students, more often than domestic students, isolate themselves in their academic struggles and further compound their academic stress and isolation from their campus community (Dodge, 1990). To further their separation, most international students do not use university health services, and many do not know how to find a physician (Miller & Harwell, 1983). One of the main reasons foreigners in the U.S. may not use mental-health services is because of the lack of culturally appropriate mental-health services (Yeh, Inman, Kim & Kobo, 2006).

### **Student Health-Information Seeking**

Swinford (2002) discussed the importance of student health as it relates to their academic life. Providing support for students' health supports their academic successes (Swinford, 2002). Unfortunately, evidence suggests that students seek medical care from physicians less frequently, relative to non-student adult populations (Fletcher et al., 2007). Students tend to delay treatment on what they assume to be acute diseases (Grace, 1997). Fletcher et al. (2007) noted that there is inadequate data related to factors that mobilize students to utilize student-health services. Underutilization of services has been found to decrease when mental-health professionals have been trained to provide culturally appropriate treatment (Yeh et al. 2006).



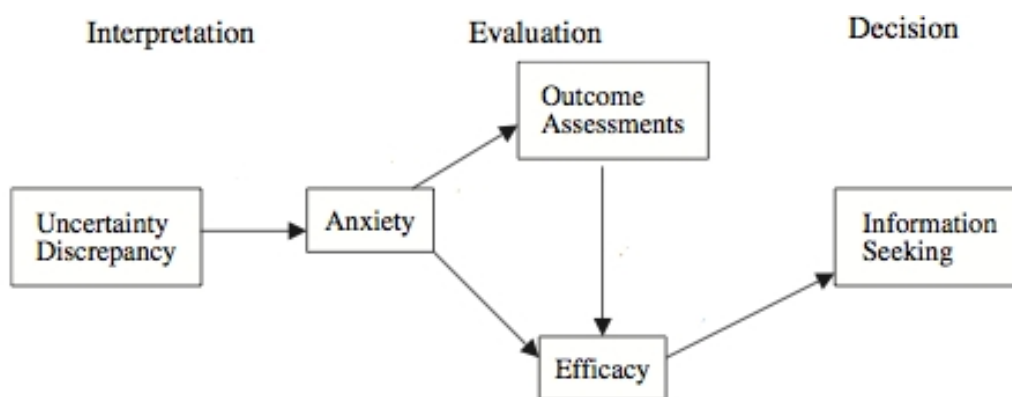
### **Student Satisfaction with Health Services**

Satisfaction with care is important because of its correlation with patient compliance and follow-through with physician instruction (Hall & Dornan, 1988; Moll van Charante, Giesen, & Mekkink, 2006). Students who may need health education around high-risk behaviors are more likely to return to university health services if they are satisfied with the treatment they received from healthcare providers (Hailey, Pargenon & Crawford, 2000). There has been little research in the college setting related to patient satisfaction (Hailey, Pargenon, & Crawford, 2000) and even less research done in the area of international students' satisfaction with university health services (Fletcher et al.). Hailey, Pargenon, and Crawford (2000) described the literature around student health as focused on high-risk behaviors, and not satisfaction with care. Measuring quality in healthcare is beneficial to both the provider and the patient, because improvements in delivery of service improve patients' needs and expectations (Straderman & Koubek, 2006). Quality service includes the patients' entire visit, from scheduling an appointment, to interacting with office staff and physician, and an aftercare recommended.

### **The Theory of Motivated Information Seeking**

The Theory of Motivated Information Management (TMIM) has been used in the past to predict the ways in which students will seek information about health. Analyzing the connection between uncertainty and information has been addressed by other theories (e.g. Gudykunst's anxiety/uncertainty management theory and Berger and Calabrese's uncertainty reduction theory). These previous theories argue that information seeking is driven by uncertainty-management motivation, whereas the TMIM argues that it is actually driven by anxiety-reduction. TMIM not only highlights the scope of theories

related to uncertainty management but also highlights dyadic communication within uncertainty management when it comes to interpersonal connections. Moreover, TMIM provides a clear accounting of the process related to decision-making and finally offers an understanding of the importance of multiple efficacy elements. Even though the suggested structure of the theory related to information providers has not yet been completely developed, assessments of the behavior of information seekers have depicted that use of the theory in various settings could be applicable. Thus, TMIM serves as the foundation for this study to examine the preferences of students in terms of the ways they seek information about their health concerns. The research model for this study is conceptually illustrated in Figure 1. The TMIM model illustrates decisions related to information management can be understood via a three-phase framework, presented as interpretation, evaluation and decision phases.



*Figure 1.* Interpretation and evaluation phases are analyzed in this study; both are detailed below. Adapted from “Seeking information about sexual health: Applying the theory of motivated information management,” by W. A. Afifi, & J. L. Weiner, 2006, *Human Communication Research*, p. 38. Copyright [2006] by International Communication Association.

### **Interpretation Phase**

This formulates the first phase in the process of information management and centers on peoples' awareness of the differences that exists between the uncertainty that prevails about a situation currently and the level of uncertainty they are willing to accept. Put differently, TMIM is not dependent upon individuals' uncertainty levels as such, but relies on comparing their stated level to the desired levels (see also, Babrow, 2001; Brashers, 2001).

### **Evaluation Phase**

The TMIM suggests that, after experiencing anxiety, people enter the evaluation phase. This particular step examines the expected results of information-seeking attempts (assessment of findings) and the observed ability to attain the information that is sought after (assessment of efficacy). These test anxiety related to the information management. According to Afifi and Weiner (2004), the outcome assessments are outlined as the proposed costs and benefits of a certain strategy used in seeking information (p. 176). Views about efficacy have reportedly depicted to perform a critical part in the behavioral decisions taken on a broad range of settings (for review, see Bandura, 1997). Outcome assessments differ in the TMIM in stating that outcome expectancies go before efficacy assessments because outcome expectancy is an evaluation of costs and benefits from an action, while efficacy judgments imply whether someone can complete an action. Efficacy is correlated with related outcomes as well as partially intervenes in the assessments of outcomes (Afifi and Weiner, 2004). Efficacy is affected by both anxiety and outcome assessments (people identifying the benefits and costs they aspire to achieve), which then directly leads to what decision is made in information seeking. In

this study, efficacy is measured with questions asking about the subject's confidence in their ability to communicate with their physician.

### **Previous Applications of the TMIM**

Afifi et al. (2006) applied the TMIM in peoples' decisions to talk with family members about organ donation. They found that uncertainty discrepancy produced anxiety, with efficacy assessments mediating outcome assessments. They found that efficacy positively associated with information seeking.

Afifi and Weiner (2006) used the TMIM to explain information seeking about sexual health. College students were surveyed to examine their sexual health information-seeking behavior and to test whether information seeking is associated with sexual decision-making. They found a negative, indirect effect between uncertainty discrepancy and information seeking, such that students who most want information about sexual health might be the least likely to seek it. The anxiety created by uncertainty discrepancy discouraged information seeking in this case.

## **Chapter 2: Research Questions and Hypotheses**

This research could significantly aid university health centers, as well as their patients, including both international and domestic students. This thesis study has three goals: (1) to increase the body of literature that exists on students and healthcare; (2) to facilitate potential improvements that could be made in a broad spectrum of contexts, including focus on what areas to improve upon in regards to patient efficacy and satisfaction, and (3) to improve student patient care by discovering positive techniques that will enable the development of an effective patient-physician relationship.

### **Research Questions**

Based on previous research on the significance of the physician's communication style to patient satisfaction (Buller & Buller, 1987; Zachariae et al., 2003) this study explores a series of research questions. International and domestic students were both asked the same set of questions. Examining survey responses from both international and domestic students offers information on any similarities and differences in data.

Therefore, the research questions are:

RQ1: Are international and domestic students significantly different with regard to their levels of uncertainty discrepancy?

RQ2: Are international and domestic students significantly different with regard to their levels of information-related anxiety?

RQ3: Are international and domestic students significantly different with regard to their levels of outcome assessment?

RQ4: Are international and domestic students significantly different with regard to their levels of communication efficacy?

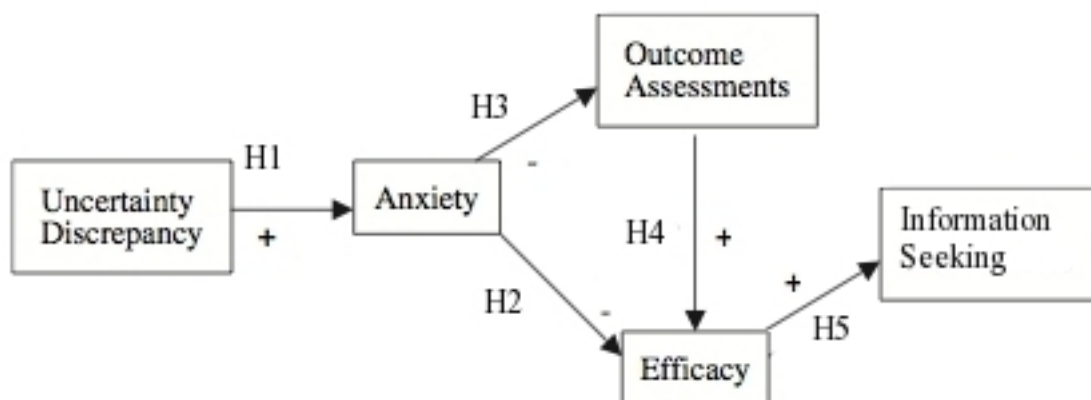
RQ5: Are international and domestic students significantly different with regard to their proposed information seeking?

RQ6: Are international and domestic students significantly different with regard to their levels of satisfaction?

### **Hypotheses**

The study examines two groups –international and domestic students at Portland State University (PSU) – in terms of their motivations to seek university-health services, and their satisfaction with university-health services. This study presented subjects with two scenarios. First, subjects were asked if they currently had a medical concern for which they might consider consulting a physician at PSU health services. If this scenario applied, subjects were asked to rate a variety of possible, theoretically informed motivations for seeking medical information in the form of consulting a physician.

The following hypotheses are provided to explain and suggest relationships between independent and dependent variables. The proposed study tests hypotheses guided by the TMIM, which predicts what is laid out below.



*Figure 2.* The hypotheses based on the questions asked about a possible future medical visit are below. Adapted from “Seeking information about sexual health: Applying the theory of motivated information management,” by W. A. Afifi, & J. L. Weiner, 2006, *Human Communication Research*, p. 38. Copyright [2006] by International Communication Association.

### **Hypothesis 1**

H1: Regarding participants who expect to see a physician about a medical concern, domestic students’ and international students’ uncertainty discrepancy about seeing a physician for a medical concern will be significantly, positively associated with students’ current health anxiety. According to Ramirez, Walther, Burgoon and Sunnafrank (2002) uncertainty is operationalized as “a cognitive state that fluctuates based on the discrepancy between the information desired and the quality of that acquired” and “uncertainty is viewed as a gauge for monitoring information-seeking effectiveness” (p. 217). Uncertainty is the space between the information a source obtains about a target and the information still needing to be uncovered in order to be able to make predictions, assumptions, and determinations about the target. The TMIM suggests

that after experiencing anxiety comes the evaluation phase. Afifi and Weiner (2006) explain that “anxiety leads to negative outcome expectancies and lowers perceptions of efficacy, which, in turn, inhibits direct information seeking” (p. 48).

### **Hypothesis 2**

H2: Regarding participants who expect to see a physician about a medical concern, domestic students’ and international students’ anxiety regarding visiting a physician will be significantly, negatively associated with students’ efficacy in terms of communicating with physicians. The greater the perceived efficacy, the higher the goals people set for themselves and the more people are committed to achieving them (Bandura, 2004).

### **Hypothesis 3**

H3: Regarding participants who expect to see a physician about a medical concern, domestic students’ and international students’ anxiety regarding visiting a physician will be significantly, negatively associated with students’ outcome assessments regarding their visits with physicians. According to Afifi and Weiner (2004), the outcome assessments are outlined as the proposed costs and benefits of a certain strategy used in seeking information (p. 176).

### **Hypothesis 4**

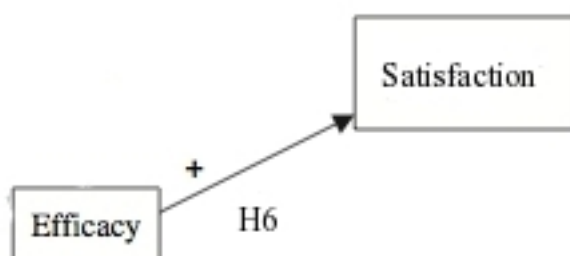
H4: Regarding participants who expect to see a physician about a medical concern, domestic students’ and international students’ outcome assessments regarding visiting a physician will be significantly, positively associated with students’ efficacy in terms of communicating with physicians.



### Hypothesis 5

H5: Regarding participants who expect to see a physician about a medical concern, domestic students' and international students' efficacy in terms of communicating with physicians will be significantly, positively associated with students' information seeking. For this study, information seeking is defined as visiting a physician. Many information seeking models and definitions are available, but most follow the idea that information seeking is practiced when a person experiences uncertainty, which prompts them to seek additional information (Case, 2002). Information is defined as a message or set of messages that reduce uncertainty (Shannon & Weaver, 1949).

Second, subjects were asked if they had previously consulted a physician at PSU health services. If this scenario applied, subjects were asked to provide satisfaction ratings of the physician and staff.



*Figure 3.* The hypothesis based on the questions asked about a possible past medical visit is below. Adapted from “Seeking information about sexual health: Applying the theory of motivated information management,” by W. A. Afifi, & J. L. Weiner, 2006, *Human*

*Communication Research*, p. 38. Copyright [2006] by International Communication Association.

### **Hypothesis 6**

H6: Regarding participants who recently consulted with a physician about a medical concern, domestic students' and international students' efficacy in terms of communicating with physicians will be significantly, positively associated with students' satisfaction with university health services. Arntson (1985) clearly defines patient satisfaction as a measurement of how well a physician fulfills the patient's expectations in the medical consultation. When treating depression in primary care, increasing patients' efficacy led to improved patient outcomes and satisfaction (Hunkeler et al., 2000).

### Chapter 3: Methodology

A quantitative research approach was selected as the appropriate one for this study for the following reasons. This study explores the efficacy of a theory (TMIM) within a specific context (past or future visit to university health services). The purpose was to obtain robust data from a large sample size, rather than in-depth qualitative interviews from a small group of individuals, common in prior studies of this field. Survey research is the best option to collect data on populations too large to observe directly (Babbie, 2004). Second, this study adds depth to previous research in the field of the TMIM, which has been predominately researched in romantic relationships.

Providing an online survey was ideal for university students as participants could easily access and complete the survey at their convenience, it was easily distributed, and the data were easy to collect and organize. *Qualtrics*, an online software application for creating web-based surveys and collecting results, was used to develop the online survey as it is provided to university students free of charge. The survey was conducted for nine weeks from June through August, 2012. Flyers were posted around campus to advertise the survey for both international and domestic students. Several classes were visited to encourage students to take the survey, with the prior permission of their instructors; Some students received extra credit towards their course grade for participating. Also, several instructors posted an announcement about the study on their course website, encouraging students to participate. This announcement clearly stated that participation was voluntary. While there may have been a perception of pressure to participate from the instructor of the course, all correspondence reiterated the voluntary basis for participation in the study and reminded them that they could drop out at any time with no consequences. Social

media was used by asking student groups and university organizations on Twitter and Facebook to encourage students to take the survey. Facebook advertising was purchased to target only current students at PSU. Jon Proctor, a senior research analyst at The Office of Institutional Research and Planning, sent an email to a sample of 2500 PSU students, international and domestic, with the survey link. The first email invited students to take the survey (see the Appendix A) on June 6. A second reminder email was sent on June 13, to thank students who had already participated in the survey and remind others to participate (see the Appendix B).

Additional effort was taken to contact international students by email. All international students with valid university e-mail accounts were selected to participate in this study. The list of international students was provided and contacted by Sarah Kenney, an international student life advisor with The International Student Life Team. The first email invited students to take the survey (see the Appendix A) on June 1. A second reminder email was sent on June 15, to thank students who had already participated in the survey and remind others to participate (see the Appendix B).

The data collection ended on August 6, which was the seventh week of the term. In order to ensure that this study was conducted in accordance with the ethical standards required by the Human Subjects Research Review Committee (HSRRC), the following procedures related to the collection and storage of data were followed. Every effort was made to minimize any potential risks to the student participants. All student names and email addresses were kept confidential. Participation in the study was voluntary and participants could discontinue participation at any time with no consequences to them. All participants were required to electronically sign a consent form before participating in

the survey. Participant feedback was collected through the Qualtrics web application and analyzed with the Statistical Package for the Social Science (SPSS) program, version 19.0.

### **Sample**

Both international and domestic students at Portland State University were participants in this study. Data was collected from both to determine if there were any distinct differences or similarities between the two groups. Portland State University is a public state university located in downtown Portland, Oregon, United States. Enrollment in Fall 2011 was 29,703 (23,222 undergraduate and 6,481 graduate students), with 1,937 international students making up 6.5 percent of the student population (Portland State University, 2011). PSU annually admits approximately 1700 international students from 100 different countries (Portland State University, 2012). Both international and domestic students were surveyed at Portland State University; All current students were eligible to take the survey. Four hundred and sixty-six respondents completed the survey instrument, 287 females (62%) and 179 males (38%). The majority of respondents were domestic students (N = 265; 57%), followed by international students (N = 201; 43%). The international students' countries of origin varied substantially in this study. Participants came to PSU from 46 countries. Prominent countries of origin were China (N = 21, 10.4%), Saudi Arabia (N = 16, 8%), South Korea (N = 14, 7%), and Vietnam (N = 13, 6.5%).

### **Pretesting and Pilot Study**

A pilot study was conducted on the survey instrument. Wording of scales was modified to be culturally sensitive (e.g. removal of high context idioms) prior to the pilot

study because of the abstractness of questions. The survey link was sent to graduate and undergraduate student colleagues, including international and domestic students, to ask their opinions and feedback about the survey. Sarah Kenney, an international student life advisor with the International Student Life Team, provided additional input as she has experience working with international students, including English-restricted students. Jon Proctor, a senior research analyst at the Office of Institutional Research and Planning, also provided additional input as he has experience working with survey research and university students. Feedback and survey instrument changes were minor, but valuable to inform if questions were incomprehensible or difficult to answer.

### **Data Collection**

After receiving Institutional Review Board approval by Human Subjects Research Review Committee at Portland State University on February 28, 2012 (see the Appendix C), the pilot study was performed. Additional changes were made to the survey instrument after the pilot study, and HSRRC approved all changes on May 30, 2012. The final survey instrument has eight components: measurements of efficacy, perceived stress, uncertainty discrepancy, anxiety, outcome assessments, information seeking, satisfaction, and demographics. Other than demographics, all questions were adapted from established scales.

When participants accessed the web survey, the informed consent page was displayed. The participants were advised of their right to withdraw from the study, the right to choose not to answer any question, and assurance of complete anonymity (see Appendix D). After participants provided their informed consent, the first section of the survey consisted of items related to demographic and background information, efficacy,

and perceived stress. If participants answered positively about a possible future medical visit, they were asked questions involving uncertainty discrepancy, anxiety, outcome assessments, and information seeking. If participants answered positively about a possible past medical visit, they were asked questions involving satisfaction. At the end of the survey, they were presented with an opportunity to win a \$25 gift card.

### **Instrumentation**

General demographic information was obtained, asking questions in regards to international and domestic student status, sex, age, undergraduate and graduate student status, country of birth, years lived in country of birth (other than the United States), native language, English language fluency, and years lived in the United States (See the Appendix E).

### **Efficacy**

Efficacy involving communicating with a health professional about a medical concern was measured with a modified version of the *Perceived Efficacy in Patient-Physician Interactions Questionnaire* (PEPPI) (Maly, Frank, Marshall, DiMatteo & Rueben, 1998) (See the Appendix F). The original nine-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. When relevant, the term "doctor" was replaced with "doctor/nurse" for better understanding. One item was eliminated from the original scale, which was "How confident are you in your ability to make the most of your visit with a doctor," because the pilot study determined that it was difficult for international students and those with low English language fluency to understand the idiom "make the most of." The modified scale had subjects indicate their

level of confidence on the following items: (1) “How confident are you in your ability to get a doctor/nurse to pay attention to what you have to say,” (2) “How confident are you in your ability to know what questions to ask a doctor/nurse,” (3) “How confident are you in your ability to get a doctor/nurse to answer all your questions,” (4) “How confident are you in your ability to ask a doctor/nurse questions about your primary health/medical concern,” (5) “How confident are you in your ability to get a doctor/nurse to take your primary health/medical concern seriously,” (6) “How confident are you in your ability to understand what a doctor tells you,” (7) “How confident are you in your ability to get a doctor/nurse to do something about your primary health/medical concern,” (8) “How confident are you in your ability to explain your primary health/medical concern to a doctor/nurse,” and (9) “How confident are you in your ability to ask a doctor/nurse for more information if you don’t understand what he or she said.” Items were formatted using a seven-point Likert-type scale.

### **Perceived Stress**

Perceived stress within the last month was measured with the *Perceived Stress Scale* (PSS) (Cohen, Kamarck, & Mermelstein, 1983) (See the Appendix G). These four items were removed from the original scale as they seemed redundant and the wording was difficult for students with low English language fluency to understand: (1) “In the last month, how often have you dealt successfully with irritating life hassles,” (2) “In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life,” (3) “In the last month, how often have you found yourself thinking about things that you have to accomplish,” and (4) “In the last month, how often have you been able to control the way you spend your time.” Wording



of questions were modified slightly for easier understanding for students with low English language fluency. The scale had subjects indicate their level of perceived stress during the last month on the following items: (1) “Been upset because of something that happened unexpectedly,” (2) “Felt that you were unable to control important things in your life,” (3) “Felt nervous and ‘stressed,’” (4) “Felt confident about your ability to handle your personal problems,” (5) “Felt that things were going your way,” (6) “Found that you could not cope with all things you had to do,” (7) “Been able to control irritations in your life,” (8) “Felt that you were on top of things,” (9) “Been angered because of things that happened that were out of your control,” and (10) “Felt difficulties were piling up so high that you could not overcome them.” Items were formatted using a seven-point Likert-type scale. Questions four, five, seven, and eight were reverse-coded. Cohen, Kamarck and Mermelstein (1983) support a complete 14-item or abridged version of this scale, as it has been proven to have substantial reliability and validity (p. 393).

### **Upcoming Visit**

The TMIM applies to information management about important issues within interpersonal encounters for information-seeking behavior (Afifi & Weiner, 2004). General questions regarding the student’s possible upcoming visit to university health services were asked (See the Appendix H) to obtain information on the health concern and level of medical severity. The TMIM was used to analyze students’ decisions to discuss health concerns with a physician and seek information about their health concern by asking questions involving uncertainty discrepancy, anxiety, outcome assessments, and information seeking.

### **Uncertainty Discrepancy**

Uncertainty discrepancy about a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi in prior research (see Afifi and Weiner, 2004) (See the Appendix I). The original four-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. The modified scale had subjects indicate their level of agreement on the following items: (1) "I know less than I would like to about my health/medical concern," and (2) "It is important that I know more about my health/medical concern." Items were formatted using a seven-point Likert-type scale. The next two questions in the scale had to be subtracted from each other to determine the uncertainty discrepancy. Subjects answered the following questions: (3) "How much information do you know about your health/medical concern," and (4) "How much information do you want to know about your health/medical concern," formatted on a five-point Likert-type scale.

### **Anxiety**

Anxiety about a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi in prior research (see Afifi and Weiner, 2004) (See the Appendix J). The original four-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. The modified scale had participants answer the following items: (1) "How anxious does it make you to think about how much you want to know versus how much you actually know about your health/medical

concern,” and (2) “How anxious does it make you to think about how much/how little you know about your health/medical concern.” Items were formatted using a seven-point Likert-type scale. The modified scale had subjects also indicate their level of agreement on the following items: (3) “My heart beats fast with anxiety when I think about how much/little I know about my health/medical concern,” and (4) “Thinking about how much/little I know about my health/medical concern is calming.” Items were formatted using a seven-point Likert-type scale. Question four was reverse-coded.

### **Outcome Assessments**

Outcome assessments about visiting the university health services in regards to a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi in prior research (see Afifi and Weiner, 2004) (See the Appendix K). The original two-item scale’s wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. Items were formatted using a seven-point Likert-type scale, from (1) A lot more negatives than positives to (7) A lot more positives than negatives. The modified scale had participants indicate their level of agreement with the following items: (1) “I feel that visiting SHAC will produce,” and (2) “I feel that talking to the doctor/nurse about my health concern will produce.”

### **Information Seeking**

Information seeking about visiting the university health services in regards to a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions

used by Afifi in prior research (see Afifi and Weiner, 2004) (See the Appendix L). The original four-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. The modified scale had participants indicate their level of agreement (from "Not Important" to "Very Important") with the following item, on a five-point Likert-type scale: (1) "Talking to a doctor/nurse about my current medical concern is." Included in this scale, participants also indicated their level of agreement with the following items: (2) "I intend to talk to a doctor/nurse about my current medical concern," (3) "It is important that I talk to a doctor/nurse about my current medical concern," and (4) "I am committed to talking to a doctor/nurse about my current medical concern." The last three items were formatted using a seven-point Likert-type scale, from (1) Strongly Disagree to (7) Strongly Agree.

### **Past Visit**

General questions regarding the student's last visit to university health services were asked (See the Appendix M) to obtain information on the health concern and level of medical severity. After this, the subject's satisfaction was measured.

### **Satisfaction**

Satisfaction about visiting the university health services about a past medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from the *Patient Experience Measures* from the *CAHPS® Clinician and Group Survey* (U.S. Department of Health and Human Services, 2011) (See the Appendix N). This scale was used as it asks patients to report on their experiences with providers and office staff at their most recent visit to a physician's

office, and is a known instrument for addressing feedback from many users that focuses on patients' experiences and satisfaction during a single visit rather than over a period of time (Browne, Roseman, Shaller & Edgman-Levitan, 2010; Davies et al., 2008). Three forms of satisfaction were measured: (1) satisfaction with providers, (2) satisfaction with staff, and (3) overall satisfaction.

The modified *satisfaction with providers* scale had participants rate the following items, on a seven-point Likert-type scale: (1) "The doctor/nurse explained things in a way that was easy to understand," (2) "The doctor/nurse listened carefully to me," (3) "The doctor/nurse gave easy to understand information about health/medical questions or concerns," (4) "The doctor/nurse knew important information about my medical history," (5) "The doctor/nurse showed respect for what I had to say," (6) "The doctor/nurse spent enough time with me," (7) "The doctor/nurse interrupted me when I was talking," (8) "The doctor/nurse talked too fast," (9) "The doctor/nurse used a condescending, sarcastic, or rude tone or manner with me," (10) "I could tell my doctor/nurse anything," (11) "I could trust my doctor/nurse with medical care," (12) "The doctor/nurse told me the truth about my health," (13) "The doctor/nurse cared as much as I did about my health," and (14) "The doctor/nurse cared about me as a person." Questions seven, eight, and nine were reverse-coded.

The modified *satisfaction with staff* scale had participants rate the following items, on a seven-point Likert-type scale: (1) "The SHAC clerks and receptionists were helpful," and (2) "The SHAC clerks and receptionists were courteous and respectful."

The modified *overall satisfaction* scale had participants rate the following items, on a seven-point Likert-type scale: (1) "Overall, I am satisfied with my last visit to

SHAC,” (2) “I plan on using SHAC in the future,” (3) “I would recommend SHAC to international students,” and (4) “I would recommend SHAC to non-international students.”

Four factors were discovered, but a decision was made to not split *satisfaction with providers* and *satisfaction with providers negatively worded* into two factors, because *satisfaction with providers negatively worded* was reverse coded, and initially meant to be used with the *satisfaction with providers* questions.

### **End of Survey**

At the end of the survey, students were advised to contact SHAC if they needed medical assistance, as well as presented with an opportunity to win one of four \$25 gift cards (See the Appendix O). The survey asked if the participant wanted to be a participant of a voluntary random drawing as an incentive. The potential prize was one \$25 gift card for four randomly chosen participants. Direct potential benefits to the student participants were minimal. While it was hoped that this incentive would increase participation, the amount was not sufficient to influence answers on the instruments or to result in students feeling coerced into participating in the study. If participants wanted to enter the raffle, they were asked to provide their e-mail address. Communication department office assistant, Denise Maher, assisted with selecting and contacting four random survey participant raffle winners. She had no access to survey data, while the researcher had no access or participation in selecting or contacting the raffle winners.

### **Pre-Analysis**

Prior to testing the model, correlations between covariates were examined to test for multicollinearity and prevent inner-collinearity. A standardized multiple regression

analysis was performed using the dependent variable *current health anxiety* and the independent variables of *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *birth country*, *years abroad*, *native English speaker*, *English language fluency*, *years in the United States*, and *perceived stress*. Several variables shared too much variance, and hence it became impractical to determine if the variables were correlated with each other or the dependent variable (multicollinearity), so variables had to be eliminated (see Belsley, Kuh, & Welsch, 1980).

The multicollinearity diagnostic test showed that *age*, *years abroad*, and *years in the United States* had strong correlations with each other, assumedly because these were numbers that the subject inputted and *years abroad* and *years in the United States* would total the subject's *age*. The decision was made to remove *years abroad* and *years in the United States*, and re-run multicollinearity diagnostics. Another set of regression analyses were run, using the same dependent variable *current health anxiety*, showing that *international or domestic student*, *birth country*, and *native English speaker* had multicollinearity problems, assumedly because international students were often born outside of the United States and were not typically native English speakers. The decision was made to keep *international or domestic student* as an independent variable and eliminate the other two from future tests. Regression analyses run with other dependent variables (e.g. *uncertainty discrepancy*, *outcome assessments*, *efficacy*, *information seeking*, and *satisfaction*) and the independent variables *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress* showed a much improved variance inflation factor for all variables and no multicollinearity problems.

## Chapter 4: Results and Analysis

This chapter reviews the results of the study. First, statistical data processing and cleaning will be discussed in detail. Then, general findings of demographics will be described. At the end, findings from a *post hoc* analysis will detail responses to the research questions and hypotheses of this thesis study.

### Survey Data Processing and Cleaning

Six hundred and thirteen participants accessed the online Internet survey during the nine weeks it was available. Qualtrics, an online software application for creating web-based surveys and collecting results, was used to develop the online survey. Once all data collection had ended, the information was downloaded from Qualtrics as an SPSS file. Data was screened for missing fields. If any items of a particular measurement scale (i.e. efficacy, perceived stress, uncertainty discrepancy, anxiety, outcome assessments, information seeking, and satisfaction) were left blank, and if missing data were not randomly distributed (Tabachnik & Fidell, 2007), then that subject's data was removed from analysis. After cleaning, four hundred and sixty-six respondents' data were used for analysis.

Exploratory analyses were performed on all scales, as appropriate (and are described in detail below). Prior to testing the model, correlations between covariates were examined to prevent multicollinearity. For correlated variables, determination was made for which variables to keep. All hypotheses were tested using a linear regression model. In each linear regression model, there were six covariates (i.e. *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*). These six covariates were chosen after correlations were examined



to prevent multicollinearity. Perceived stress was tested since prior research suggested that international students had more stress (Gunn, 1988).

### **Efficacy**

Efficacy involving communicating with a health professional about a medical concern was measured with a modified version of the Perceived Efficacy in Patient-Physician Interactions Questionnaire (PEPPI) (Maly et al., 1998). The 10 self-report items from the PEPPI Questionnaire were modified slightly (for easier understanding for students with low English language fluency) to measure patients' efficacy in obtaining medical information and attention to their medical concerns from physicians. An example item is "How confident are you in your ability to explain your chief health concern to a doctor," which was changed to "How confident are you in your ability to explain your primary health/medical concern to a doctor/nurse?" Responses were on a Likert-type scale, ranging from 1 = "Completely Not Confident," 2 = "Moderately Not Confident," 3 = "Slightly Not Confident," 4 = "Neutral," 5 = "Slightly Confident," 6 = "Moderately Confident," 7 = "Completely Confident."

A reliability assessment produced an alpha coefficient of .95 ( $M = 52.4$ ,  $SD = 10.1$ , range = 9 – 63, variance = 101.7, skewness = -1.2, kurtosis = 1.6). The inter-correlation among the efficacy scale ( $\alpha = .95$ ) was excellent (Cortina, 1993).

The Kaiser-Meyer-Olkin measure of sampling adequacy was .936, above the commonly recommended value of .6, which shows that the degree of common variance among the variables is quite high; therefore factor analysis can be conducted (Hair, Anderson, Tatham, & Black, 1998). A Varimax rotation factor analysis revealed one factor, with an eigenvalue of 6.42 that accounted for 71.4% of the variance. Bartlett's test

of sphericity was significant ( $\chi^2(36) = 3672, p < .05$ ). The diagonals of the anti-image correlation matrix were also all over .5. Finally, the communalities were all above .3, further confirming that each item shared some common variance with other items.

### **Perceived Stress**

Ten out of fourteen self-report items from the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983) were modified slightly (for easier understanding for students with low English language fluency) to measure patients' perceived stress in the last month. An example item is "In the last month, how often have you been upset because of something that happened unexpectedly?" Responses were on a Likert-type scale, ranging from 1 = "Never," 2 = "Almost Never," 3 = "Sometimes," 4 = "Fairly Often," 5 = "Very Often," 6 = "Usually," 7 = "Always." Cohen, Kamarck and Mermelstein (1983) support a complete 14-item or abridged version of this scale, as it has been proven to have substantial reliability and validity (p. 393).

A reliability assessment produced an alpha coefficient of .83 ( $M = 35.1$ ,  $SD = 9.0$ , range = 10 - 68, variance = 81.7, skewness = .2, kurtosis = -.0). The inter-correlation among the perceived stress scale was good (Cortina, 1993).

The Kaiser-Meyer-Olkin measure of sampling adequacy was .837, above the commonly recommended value of .6, which shows that the degree of common variance among the variables is quite high and that factor analysis can be acceptably conducted (Hair et al., 1998). A Varimax oblique rotation was chosen for factor analysis as it allowed the factors to correlate; The factor analysis revealed two factors. The first factor had an eigenvalue of 4.03 and accounted for 40.3% of the variance. The second factor had an eigenvalue of 2.20 and accounted for 22.0% of the variance. Bartlett's test of

sphericity was significant ( $\chi^2 (45) = 1935, p < .05$ ). The diagonals of the anti-image correlation matrix were also all over .5. Finally, the communalities were all above .3, further confirming that each item shared common variance. Given these overall indicators, factor analysis was deemed to be suitable with all ten items. Two factors were discovered; perceived stress questions that were asked positively, and others that were asked negatively. The decision was made not to split the scale into two factors, because it was the reverse coded questions (e.g. the negatively asked questions) that caused a second factor, and the scale was originally created this way. Because reversing the scale of some questions so that high-scale values reflect a low value in the end measure has been proven to increase validity (Tibbles, Waalen, & Hains, 1998), and because the scale was proven reliable, the decision was made to treat the entire scale as a single variable.

### **Uncertainty Discrepancy**

Uncertainty discrepancy about a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi in prior research (see Afifi and Weiner, 2004). The original four-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. The modified scale had subjects indicate their level of agreement on the following items: (1) "I know less than I would like to about my health/medical concern," and (2) "It is important that I know more about my health/medical concern." Items were formatted using a seven-point Likert-type scale. The next two questions in the scale had to be subtracted from each other to determine the uncertainty discrepancy. Subjects answered the following questions: (3) "How much

information do you know about your health/medical concern,” and (4) “How much information do you want to know about your health/medical concern,” formatted on a five-point Likert-type scale. Any negative output was set to zero and then combined with the first two questions, for the scale.

Reliability and factor analysis could not be tested on the uncertainty discrepancy scale, due to its unique calculation process.

### **Anxiety**

Anxiety about a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi and Weiner (2004) in prior research. The modified scale had participants answer the following items: (1) “How anxious does it make you to think about how much you want to know versus how much you actually know about your health/medical concern,” and (2) “How anxious does it make you to think about how much/how little you know about your health/medical concern.” Items were formatted using a seven-point Likert-type scale. The modified scale had subjects also indicate their level of agreement on the following items: (3) “My heart beats fast with anxiety when I think about how much/little I know about my health/medical concern,” and (4) “Thinking about how much/little I know about my health/medical concern is calming.” Items were formatted using a seven-point Likert-type scale. Question four was reverse-coded.

A reliability assessment produced an acceptable alpha coefficient of .75 ( $M = 15.4$ ,  $SD = 5.6$ , range = 4 – 28, variance = 31.1, skewness = -.0, kurtosis = -.7).

The Kaiser-Meyer-Olkin measure of sampling adequacy shows that the degree of common variance among the variables is quite high; therefore factor analysis can be conducted (Hair et al., 1998). A factor analysis revealed one factor. The factor had an eigenvalue of 2.47 that accounted for 61.8% of the variance. Bartlett's test of sphericity was significant ( $\chi^2(6) = 472, p < .05$ ).

### **Outcome Assessments**

Outcome assessments about visiting the university health services in regards to a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi and Weiner (2004) in prior research. The original two-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. The modified scale had participants indicate their level of agreement with the following items: (1) "I feel that visiting SHAC will produce..." and (2) "I feel that talking to the doctor/nurse about my health concern will produce..." Items were formatted using a seven-point Likert-type scale.

A reliability assessment produced an alpha coefficient of .84 ( $M = 9.1, SD = 3.3, \text{range} = 2 - 14, \text{variance} = 10.7, \text{skewness} = -.2, \text{kurtosis} = -.9$ ). The inter-correlation among the outcome assessments scale ( $\alpha = .84$ ) was good (Cortina, 1993).

The Kaiser-Meyer-Olkin measure of sampling adequacy was .500, below the commonly recommended value of .6. Bartlett's test of sphericity was significant ( $\chi^2(1) = 173, p < .05$ ) (Hair et al., 1998). Validity would be stronger if this scale had more questions, because it would have more than two questions to measure (Little,

Lindenberger, & Nesselroade, 1999). A factor analysis revealed one factor, with an eigenvalue of 1.72 that accounted for 86.2% of the variance.

### **Information Seeking**

Information seeking about visiting the university health services in regards to a current medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from original questions used by Afifi and Weiner (2004) in prior research. The original four-item scale's wording had to be modified because an extra effort was made so students with low English language fluency would be able to better understand and complete the survey. The modified scale had participants indicate their level of agreement with the following item, on a five-point Likert-type scale: (1) "Talking to a doctor/nurse about my current medical concern is." Included in this scale, participants also indicated their level of agreement with the following items: (2) "I intend to talk to a doctor/nurse about my current medical concern," (3) "It is important that I talk to a doctor/nurse about my current medical concern," and (4) "I am committed to talking to a doctor/nurse about my current medical concern." Items were formatted using a seven-point Likert-type scale.

A reliability assessment produced an alpha coefficient of .92 ( $M = 19.7$ ,  $SD = 5.6$ , range = 4 - 26, variance = 31.7, skewness = -.9, kurtosis = .3). The inter-correlation among the information seeking scale ( $\alpha = .92$ ) was excellent (Cortina, 1993). The degree of skewness is significant. The distribution is heavily skewed left, meaning that the left tail is long relative to the right tail (Oja, 1983). Data log transformation can correct deviation from normality, but for transformations to be effective, the ratio of a variable's mean to its standard deviation should be less than 4.0 (Hair, Black, Babin, Anderson, and

Tatham, 2006). The measure was heavily skewed, indicating that most did think it was important and/or planned to speak with a physician about their current medical concern. Data log transformation is not appropriate for this variable, and bootstrapping would not be appropriate as a minimum valid sample size could not be met (Bickel & Freedman, 1981).

The Kaiser-Meyer-Olkin measure of sampling adequacy was .842, above the commonly recommended value of .6, which shows that the degree of common variance among the variables is quite high (Hair et al., 1998). Bartlett's test of sphericity was significant ( $\chi^2(6) = 824, p < .05$ ). The diagonals of the anti-image correlation matrix were also all over .5. Finally, the communalities were all above .3, further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was deemed to be suitable with all four items. A factor analysis revealed one factor, with an eigenvalue of 3.30 that accounted for 82.7% of the variance.

### **Satisfaction**

Satisfaction about visiting the university health services about a past medical concern was measured with a scale that was modified slightly (for easier understanding for students with low English language fluency) from the *Patient Experience Measures* from the *CAHPS® Clinician and Group Survey* (U.S. Department of Health and Human Services, 2011). This scale was used as it asks patients to report on their experiences with providers and office staff at their most recent visit to a physician's office, and is a known instrument for addressing feedback from many users that focuses on patients' experiences and satisfaction during a single visit rather than over a period of time (Browne et al.,

2010; Davies et al., 2008). Three forms of satisfaction were measured: (1) satisfaction with providers, (2) satisfaction with staff, and (3) overall satisfaction.

The modified *satisfaction with providers* scale had participants rate the following items, on a seven-point Likert-type scale: (1) “The doctor/nurse explained things in a way that was easy to understand,” (2) “The doctor/nurse listened carefully to me,” (3) “The doctor/nurse gave easy to understand information about health/medical questions or concerns,” (4) “The doctor/nurse knew important information about my medical history,” (5) “The doctor/nurse showed respect for what I had to say,” (6) “The doctor/nurse spent enough time with me,” (7) “The doctor/nurse interrupted me when I was talking,” (8) “The doctor/nurse talked too fast,” (9) “The doctor/nurse used a condescending, sarcastic, or rude tone or manner with me,” (10) “I could tell my doctor/nurse anything,” (11) “I could trust my doctor/nurse with medical care,” (12) “The doctor/nurse told me the truth about my health,” (13) “The doctor/nurse cared as much as I did about my health,” and (14) “The doctor/nurse cared about me as a person.” Questions seven, eight, and nine were reverse-coded.

The modified *satisfaction with staff* scale had participants rate the following items, on a seven-point Likert-type scale: (1) “The SHAC clerks and receptionists were helpful,” and (2) “The SHAC clerks and receptionists were courteous and respectful.”

The modified *overall satisfaction* scale had participants rate the following items, on a seven-point Likert-type scale: (1) “Overall, I am satisfied with my last visit to SHAC,” (2) “I plan on using SHAC in the future,” (3) “I would recommend SHAC to international students,” and (4) “I would recommend SHAC to non-international students.”



Cronbach alphas for *satisfaction with providers*, *satisfaction with staff*, and *overall satisfaction* subscales were .92, .91, and .93, respectively, indicating that the scales had excellent intern-correlation consistency (Cortina, 1993). Scale means were 76.3 (SD = 15.9, range = 29 - 98, variance = 252.1, skewness = -.6, kurtosis = -.2) for *satisfaction with providers* (14 items), 11.8 (SD = 2.6, range = 5 - 14, variance = 6.9, skewness = -1.0, kurtosis = -.3) for *satisfaction with staff* (two items), and 22.5 (SD = 6.2, range = 4 - 28, variance = 38.2, skewness = -1.4, kurtosis = 1.4) for *overall satisfaction* (four items). The degree of skewness is significantly skewed for all variables, the most problematic being *overall satisfaction*. The distribution is heavily skewed left, indicating that most did have high satisfaction after visiting university health services for past medical concern. Data log transformation can correct deviation from normality, but for transformations to be effective, the ratio of a variable's mean to its standard deviation should be less than 4.0 (Hair, Black, Babin, Anderson, and Tatham, 2006). Data log transformation and bootstrapping would not be appropriate for these variables.

All 20 items correlated at least .3 with at least one other item. The Kaiser-Meyer-Olkin measure of sampling adequacy was .908, above the commonly recommended value of .6, which shows that the degree of common variance among the variables is quite high (Hair et al., 1998). Bartlett's test of sphericity was significant ( $\chi^2(190) = 4714, p < .05$ ). The diagonals of the anti-image correlation matrix were also all over .5. Finally, the communalities were all above .3, further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was deemed to be suitable with all twenty items. A factor analysis revealed four factors. The first factor (*satisfaction with providers*) had an eigenvalue of 9.97 that accounted for 49.8% of the

variance. The second factor (*satisfaction with providers negatively worded*) had an eigenvalue of 2.31 that accounted for 11.5% of the variance. The third factor (*satisfaction with staff*) had an eigenvalue of 1.57 that accounted for 7.8% of the variance. The fourth factor (*overall satisfaction*) had an eigenvalue of 1.10 that accounted for 5.5% of the variance. Table 1 shows factor loadings using a Varimax rotation.

Table 1  
*Satisfaction's Rotated Component Matrix*

Items	SWP	OS	SWPNW	SWS
1	<b>.765</b>	.235	.186	.151
2	<b>.826</b>	.167	.213	.090
3	<b>.810</b>	.279	.115	.099
4	<b>.685</b>	.122	-.109	.104
5	<b>.805</b>	.306	.155	.016
6	<b>.744</b>	.338	.093	.120
7	.072	.002	<b>.896</b>	.099
8	.049	.056	<b>.873</b>	.112
9	.129	.049	<b>.847</b>	-.025
10	<b>.664</b>	.149	.027	.088
11	<b>.740</b>	.412	.059	.107
12	<b>.726</b>	.234	.079	.233
13	<b>.777</b>	.347	-.013	.104
14	<b>.758</b>	.350	.030	.074
15	.168	.306	.085	<b>.887</b>
16	.216	.106	.108	<b>.921</b>
17	.495	<b>.743</b>	.100	.182
18	.340	<b>.747</b>	-.043	.127
19	.389	<b>.853</b>	.057	.154
20	.401	<b>.837</b>	.088	.179

*Note.* Factor loadings > .50 are in boldface. SWP = Satisfaction with providers; OS = Overall satisfaction; SWPNW = Satisfaction with providers negatively worded; SWS = Satisfaction with staff.

Because *satisfaction with providers negatively worded* was reverse coded, and initially meant to be used with the *satisfaction with providers* questions, those two factors will be treated as a single scale for subsequent analysis.

### **Descriptive Statistics**

Both international and domestic students were surveyed at Portland State University. Four hundred and sixty-six respondents completed the survey instrument, 287 females (62%) and 179 males (38%). The respondents' ages range from 17-58 ( $M = 27.70$ , median = 26,  $SD = 7.863$ ). The majority of respondents were domestic students ( $N = 265$ ; 57%), followed by international students ( $N = 201$ ; 43%). Among the 466 participants, 317 (68%) were undergraduate students, and 149 (32%) were graduate students.

Each participant was asked if they had a current medical condition that they would like to visit university health services in regards to. Two hundred and forty-five participants answered positively about a possible future medical visit, where hypotheses one through five are measured. The respondents' ages range from 17-57 ( $M = 29.02$ , median = 27.00,  $SD = 8.280$ ). The majority of respondents were domestic students ( $N = 143$ ; 58.4%), followed by international students ( $N = 102$ ; 41.6%). Among the 245 participants, 167 (68.2%) were undergraduate students, and 78 (31.8%) were graduate students. The majority of respondents were female ( $N = 148$ ; 60.4%), versus male ( $N = 94$ ; 38.4%).

Each participant was asked if they had visited student health services in the past. Two hundred and seventy-four participants answered positively, having previously consulted a physician at PSU health services, where hypothesis six is measured. The respondents' ages range from 17-55 ( $M = 28.05$ , median = 26.00,  $SD = 7.792$ ). The majority of respondents were domestic students ( $N = 154$ ; 56.2%), followed by international students ( $N = 120$ ; 43.8%). Among the 274 participants, 179 (65.3%) were

undergraduate students, and 95 (34.7%) were graduate students. The majority of respondents were female (N = 178; 65.0%), versus male (N = 94; 34.3%).

### Countries of origin

International student participants came to PSU from 46 countries (Table 2).

Sixteen international student participants did not list a country they were born in.

Table 2

#### *International student Participants' Countries of Origin*

Country	Frequency	Percent
Canada	6	3
China	21	10.4
India	11	5.5
Japan	10	5
Kuwait	9	4.5
Saudi Arabia	16	8
South Korea	14	7
Taiwan	7	3.5
Thailand	8	5
Vietnam	13	6.5
Not listed	16	8
Other	70	34.8
Total	201	100

*Note.* These values may not total 100% due to rounding.

### Personal Attributes

Domestic and international students were asked to answer questions in regards to their native language, English fluency, and years lived in the United States.

**Native language.** Regarding domestic students, 213 (80.4%) participants identified themselves as native English speakers. Regarding international students, 25 (12.4%) participants identified themselves as native English speakers.

**English fluency.** Being a domestic student does not guarantee that the participant has no language barrier (Table 3 and Figure 4). The results indicated that 8 domestic students (3%) considered themselves to have limited working or basic proficiency.

Among international students, 32 (15.9%) considered themselves to have limited working proficiency, and 10 (5%) considered themselves to have basic proficiency.

Table 3

*English fluency*

English Fluency	Domestic Student	International Student
Native or bilingual	199 (75.1%)	43 (21.4%)
Full professional proficiency	45 (17.0%)	47 (23.4%)
Professional working proficiency	13 (4.9%)	69 (34.3%)
Limited working proficiency	4 (1.5%)	32 (15.9%)
Basic proficiency	4 (1.5%)	10 (5%)
Total	265 (100%)	201 (100%)

*Note.* These values may not total 100% due to rounding.

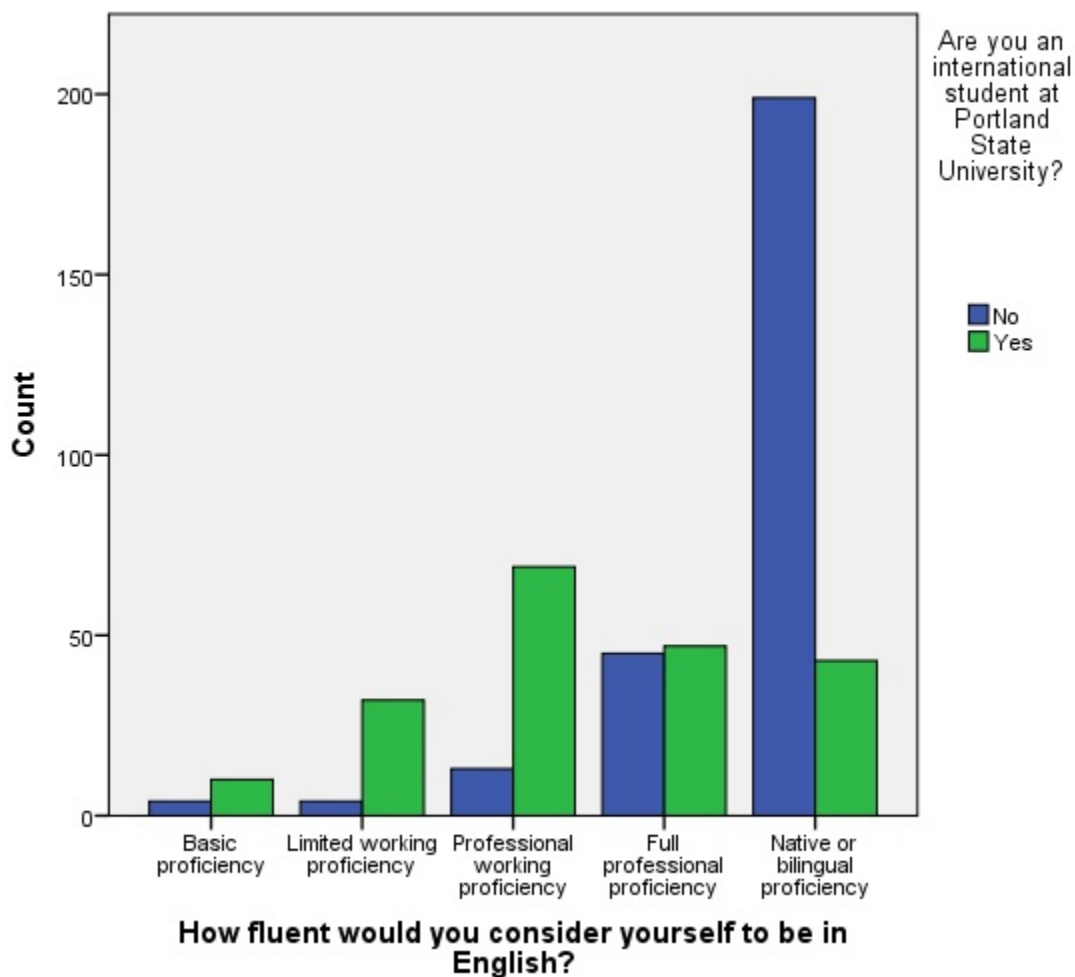


Figure 4. English fluency for international and domestic students.

**Years lived in the US.** Participants answered how long they had lived in the United States. Domestic students' years lived in the United States ranged from 1-58 ( $M = 24.45$ , median = 23.00,  $SD = 10.748$ ) while international students' years lived in the United States ranged from 1 - 41 ( $M = 5.18$ , median = 3.00,  $SD = 6.713$ ). International students could be undergraduate, graduate, Intensive English Language Program participants, or exchange students. If older students have chosen not to or are legally not able to pursue US citizenship, they may have lived in the US for decades and still be labeled as an international student.

**Medical concerns and their severity.** If participants indicated that they had a current medical concern, they were asked to choose what their health concern was; they were allowed to choose from all applicable categories or fill in their own answer. Participants could list several health concerns. Their medical concerns (Table 4) and health severity (Table 5 and Figure 5) were varied, with the greatest concern for domestic students being stress ( $N = 70$ , 11.8%), general physical exam ( $N = 46$ , 7.8%), and physical injury ( $N = 45$ , 7.6%), and the greatest concern for international students being stress ( $N = 26$ , 13.9%), cold and flu ( $N = 17$ , 9.1%), and problem with back ( $N = 14$ , 7.5%). Other listed medical concerns included problem with ears, allergies, anxiety, diabetes, and high blood pressure. Moderate was the most frequently chosen severity for current health concerns ( $N = 150$ ; 45.3%).

Table 4

*List of current medical concerns for domestic and international students*

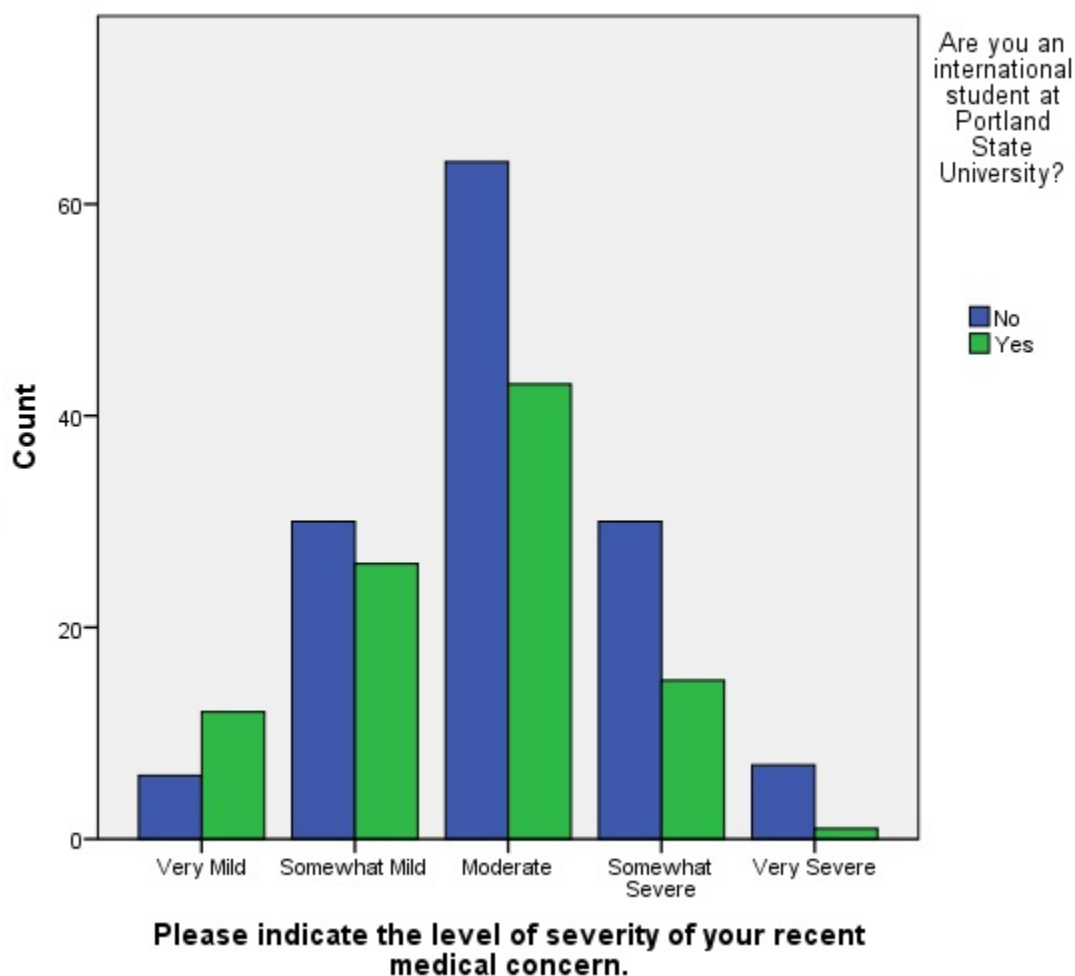
Medical Concern	Domestic Student	International Student	Total
Cold and flu	37 (6.3%)	17 (9.1%)	64 (8.2%)
Physical injury	45 (7.6%)	13 (7.0%)	58 (7.5%)
Problem with eyes/vision	20 (3.4%)	7 (3.7%)	27 (3.5%)
Problem with skin	24 (4.1%)	8 (4.3%)	32 (4.1%)
Problem with stomach	21 (3.6%)	9 (4.8%)	30 (3.9%)
Problem with back	33 (5.6%)	14 (7.5%)	47 (6.0%)
Problem with breathing	28 (4.7%)	5 (2.7%)	33 (4.2%)
Problem with stress	70 (11.8%)	26 (13.9%)	96 (12.3%)
Diet and nutrition	25 (4.2%)	7 (3.7%)	32 (4.1%)
General physical exam	46 (7.8%)	11 (5.9%)	57 (7.3%)
Problem with medication	27 (4.6%)	9 (4.8%)	36 (4.6%)
Sexual health	39 (6.6%)	11 (5.9%)	50 (6.4%)
Medical tests	35 (5.9%)	12 (6.4%)	47 (6.0%)
Headache/migraine	28 (4.7%)	7 (3.7%)	35 (4.5%)
Counseling	43 (7.3%)	10 (5.3%)	53 (6.8%)
Depression	40 (6.8%)	13 (7.0%)	53 (6.8%)
Other	30 (5.1%)	8 (4.3%)	38 (4.9%)
Total	591	187	778

Table 5

*Current medical concern severity*

Health severity	Domestic Student	International Student	Total
Very Mild	18 (7.7%)	12 (12.4%)	30 (9.1%)
Somewhat Mild	56 (23.9%)	26 (26.8%)	82 (24.8%)
Moderate	107 (45.7%)	43 (44.3%)	150 (45.3%)
Somewhat Severe	45 (19.2%)	15 (15.5%)	60 (18.1%)
Very Severe	8 (3.4%)	1 (1%)	9 (2.7%)
Total	234	97	331

*Note.* These values may not total 100% due to rounding.



*Figure 5.* Level of severity of recent medical concern for international and domestic students.

If participants indicated that they had a prior medical concern treated at the university health services, they were asked to choose what their health concern was; They were allowed to choose from all applicable categories or fill in their own answer. Among participants, their medical concerns (Table 6) and health severity (Table 7 and Figure 6) were varied, with the greatest concern for domestic students being counseling (N = 35, 13.7%), stress (N= 28, 11.0%), and cold and flu (N = 28, 11.0%), and the greatest concern for international students being cold and flu (N = 28, 14.1%), physical injury (N = 19, 9.6%), and stress (N = 18, 9.1%). Other medical concerns included problems with



breathing, diet and nutrition, and dental. Counseling included problems with stress; if those two items were combined, stress would be seen as college students' largest medical concern.

Table 6

*List of past medical concerns for domestic and international students*

Medical Concern	Domestic Student	International Student	Total
Cold and flu	28	28	56
Physical injury	23	19	42
Problem with skin	12	17	29
Problem with stomach	7	8	15
Problem with back	8	9	17
Problem with ears	5	6	11
Problem with stress	28	18	46
General physical exam	17	11	28
Problem with medication	11	5	16
Sexual health	26	16	42
Medical tests	10	8	18
Counseling	35	14	49
Depression	16	8	24
Other	29	31	60
Total	255	198	453

Table 7

*Past medical concern severity*

Health severity	Domestic Student	International Student	Total
Very Mild	35 (23.8%)	25 (22.1%)	60 (23.1%)
Somewhat Mild	23 (15.6%)	25 (22.1%)	48 (18.5%)
Moderate	49 (33.3%)	38 (33.6%)	87 (33.5%)
Somewhat Severe	31 (21.1%)	20 (17.7%)	51 (19.6%)
Very Severe	9 (6.1%)	5 (4.4%)	14 (5.4%)
Total	147	113	260

*Note.* These values may not total 100% due to rounding.

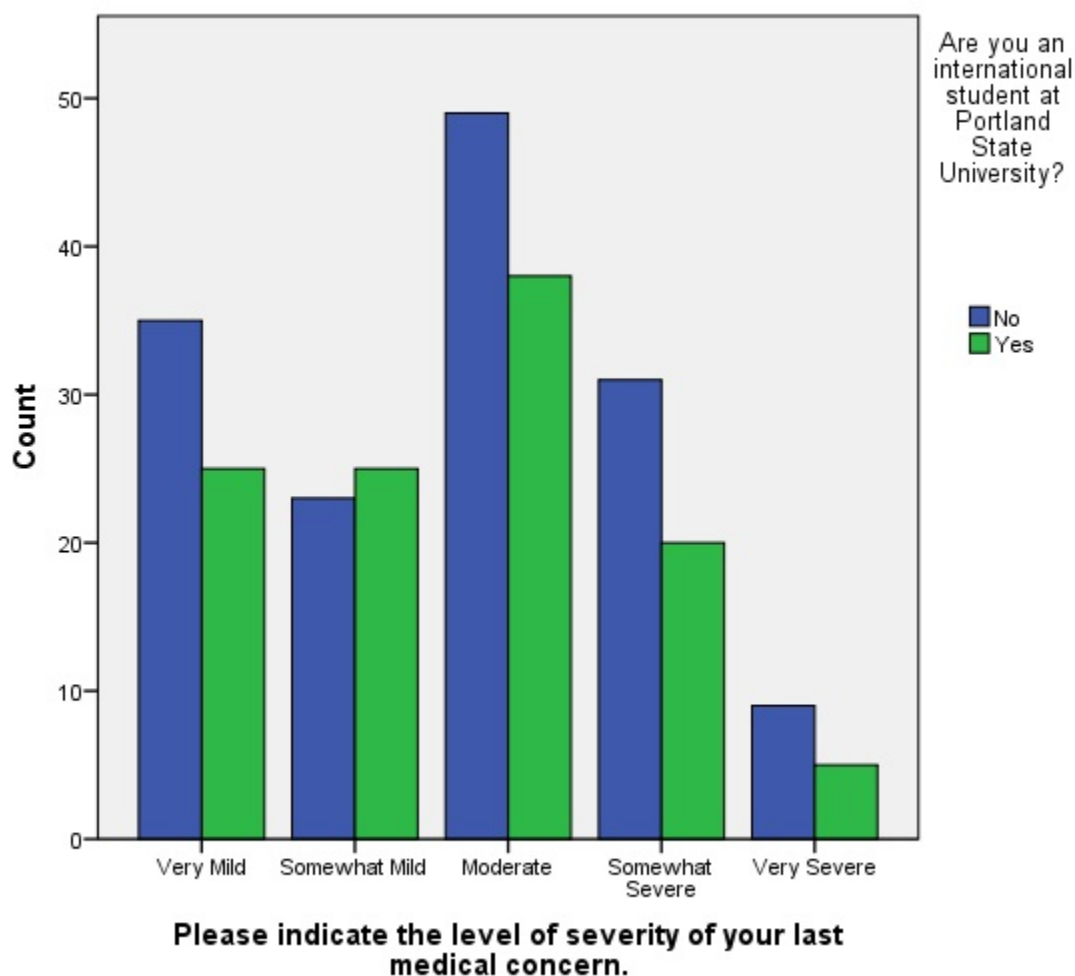


Figure 6. Level of severity of recent medical concern for international and domestic students.

### Primary Analysis

A series of independent samples *t* tests, multiple linear regressions, and correlations were used to answer the research questions and analyze the hypotheses. The level of significance was set at  $\alpha = .05$  for all tests. This study examines two groups – that is, international and domestic students at Portland State University – in terms of their motivations to seek university health services, and their satisfaction with university health services.

## Research Questions

Six research questions were asked for this study, comparing international and domestic students in regards to six variables: *uncertainty discrepancy*, *current health anxiety*, *outcome assessments*, *communication efficacy*, *health-information seeking*, *satisfaction* (split into three factors: *satisfaction with providers*, *satisfaction with staff*, and *overall satisfaction*). A *t* test was used to test if there was a difference between international and domestic students on the six variables.

The results of an independent samples *t* test failed to support that international students ( $M = 10.59$ ,  $SD = 3.64$ ) and domestic students ( $M = 10.03$ ,  $SD = 3.78$ ) were different in regards to their *uncertainty discrepancy*,  $t(233) = 1.13$ ,  $p > .10$ . An independent samples *t* test revealed that international students ( $M = 16.79$ ,  $SD = 3.64$ ) did differ from domestic students ( $M = 14.34$ ,  $SD = 3.78$ ) in regards to *current health anxiety*,  $t(233) = 3.39$ ,  $p < .05$ ,  $\eta^2 = .22$ . International students ( $M = 9.11$ ,  $SD = 3.24$ ) did not differ from domestic students ( $M = 9.05$ ,  $SD = 3.31$ ) in regards to *outcome assessments*,  $t(233) = .14$ ,  $p > .10$ . International students' ( $M = 51.19$ ,  $SD = 10.91$ ) and domestic students' ( $M = 53.27$ ,  $SD = 9.33$ ) *communication efficacy* proved to be significantly different,  $t(464) = -2.21$ ,  $p < .01$ ,  $\eta^2 = -.10$ . The results of an independent samples *t* test failed to support that international students ( $M = 19.55$ ,  $SD = 5.47$ ) and domestic students ( $M = 19.83$ ,  $SD = 5.75$ ) were different in regards to their *health-information seeking*,  $t(233) = -.37$ ,  $p > .10$ .

The final *t* tests were conducted to explore differences between international and domestic students on their levels of satisfaction. International students' ( $M = 77.87$ ,  $SD = 13.92$ ) and domestic students' ( $M = 75.15$ ,  $SD = 17.28$ ) *satisfaction with providers*

proved to be significantly different,  $t(258) = 1.37, p < .05, \eta^2 = .09$ . International students ( $M = 23.04, SD = 5.41$ ) did not differ from domestic students ( $M = 22.13, SD = 6.70$ ) in regards to *overall satisfaction*,  $t(258) = 1.18, p > .10$ . International students ( $M = 11.46, SD = 2.74$ ) did not differ from domestic students ( $M = 12.09, SD = 2.50$ ) in regards to *satisfaction with staff*,  $t(258) = -1.93, p > .10$ .

Differences in international and domestic students' anxiety, efficacy, and satisfaction with physicians were found. International students reported more anxiety than domestic students. Domestic students reported being more efficacious than international students, when talking to a medical provider about a current medical issue. Also, international students reported higher satisfaction with a medical provider at their last university health services visit.

## Hypotheses

Hypotheses one through five were tested for participants who indicated they might attend university health services for a current medical issue. Likewise, hypothesis six was tested among participants who had previously attended a medical visit at university health services.

**Hypothesis 1.** A multiple linear regression analysis was performed between the dependent variable (*anxiety*) and the independent variables (*uncertainty discrepancy, international or domestic student, sex, age, undergraduate or graduate student, English language fluency, and perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .38, F(7, 225) = 20.04, p < .001$ . The adjusted  $R^2$  was .37. The semipartial correlation coefficient for uncertainty discrepancy was .47,  $S^2 = .22$ . In terms of the individual relationship between the

independent variable, *uncertainty discrepancy*, and the dependent variable, *anxiety*,  $B = .72, p < .001$ . Therefore, H1 was supported. Among participants who expect to see a physician about a medical concern, domestic students and international students' uncertainty discrepancy about seeing a physician for a medical concern was significantly, positively associated with students' current health anxiety.

Table 8

*Results of regression analyses with anxiety as dependent variable*

Variables	$B$	$\beta$	$p$	$S4$
Uncertainty Discrepancy	.718	.475	.000	.468
International or Domestic	3.128	.276	.000	.212
Sex	-1.470	-.128	.028	-.116
Age	-.007	-.010	.857	-.009
Undergraduate or Graduate	.165	.014	.809	.013
English Fluency	.473	.090	.163	.073
Perceived Stress	.171	.278	.000	.271

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

In terms of individual relationships between the independent variables and *anxiety*, *uncertainty discrepancy*, *international or domestic student* ( $p < .001$ ), *sex* ( $p < .05$ ), and *perceived stress* ( $p < .001$ ) each significantly predict *anxiety*.

**Hypothesis 2.** A multiple linear regression analysis was performed between the dependent variable (*efficacy*) and the independent variables (*anxiety*, *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .15, F(7, 225) = 5.84, p < .001$ . The adjusted  $R^2$  was .13. The semipartial correlation coefficient for anxiety was  $-.22, S4^2 = .05$ . In terms of the individual relationship between the independent variable, *anxiety*, and the dependent variable, *efficacy*,  $B = -.41, p < .01$ . Therefore, H2 was supported. Among participants

who expect to see a physician about a medical concern, domestic students and international students' anxiety regarding visiting a physician is significantly, negatively associated with students' efficacy in terms of communicating with physicians.

Table 9

*Results of regression analyses with efficacy as dependent variable*

Variables	<i>B</i>	$\beta$	<i>p</i>	<i>S4</i>
Anxiety	-.409	-.237	.001	-.217
International or Domestic	4.547	.233	.005	.174
Sex	-2.670	-.135	.050	-.121
Age	.078	.067	.304	.063
Undergraduate or Graduate	.242	.012	.861	.011
English Fluency	2.022	.224	.004	.181
Perceived Stress	-.144	-.136	.042	-.126

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

In terms of individual relationships between the independent variables and *efficacy*, *anxiety* ( $p < .01$ ), *international or domestic student* ( $p < .01$ ), *sex* ( $p < .05$ ), *English language fluency* ( $p < .01$ ), and *perceived stress* ( $p < .05$ ) each significantly predict *efficacy*. *Anxiety* and *perceived stress* significantly, negatively associated with *efficacy*. Being an international student, a female, or having a high level of *English level fluency* all had significant, positive associations with *efficacy*.

**Hypothesis 3.** A multiple linear regression analysis was performed between the dependent variable (*outcome assessments*) and the independent variables (*anxiety*, *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .26$ ,  $F(7, 225) = 11.13$ ,  $p < .001$ . The adjusted  $R^2$  was .23. The semipartial correlation coefficient for anxiety was -.45,  $S4^2 = .20$ . In terms of the individual relationship between the independent variable,

*anxiety*, and the dependent variable, *outcome assessments*,  $B = -.29$ ,  $p < .001$ . Therefore, H3 was supported. Among participants who expect to see a physician about a medical concern, domestic students and international students' anxiety regarding visiting a physician was significantly, negatively associated with students' outcome assessments regarding their visits with physicians.

Table 10

*Results of regression analyses with outcome assessments as dependent variable*

Variables	$B$	$\beta$	$p$	$S4$
Anxiety	-.290	-.494	.000	-.451
International or Domestic	1.304	.196	.012	.146
Sex	-.100	-.015	.817	-.013
Age	.021	.053	.382	.050
Undergraduate or Graduate	.889	.125	.044	.117
English Fluency	.272	.088	.215	.071
Perceived Stress	-.012	-.033	.591	-.031

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

In terms of individual relationships between the independent variables and *outcome assessments*, *anxiety* ( $p < .001$ ), *international or domestic student* ( $p < .05$ ), and *undergraduate or graduate student* ( $p < .05$ ) each significantly predict *outcome assessments*.

**Hypothesis 4.** A multiple linear regression analysis was performed between the dependent variable (*efficacy*) and the independent variables (*outcome assessments*, *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .14$ ,  $F(7, 225) = 5.06$ ,  $p < .001$ . The adjusted  $R^2$  was .11. The semipartial correlation coefficient for outcome assessments was .17,  $S4^2 = .03$ . In terms of the individual relationship between the independent

variable, *outcome assessments*, and the dependent variable, *efficacy*,  $B = .52, p < .01$ .

Therefore, H4 was supported. Among participants who expect to see a physician about a medical concern, domestic students and international students' outcome assessments regarding visiting a physician was significantly, positively associated with students' efficacy regarding their visits with physicians.

Table 11

*Results of regression analyses with efficacy as dependent variable*

Variables	<i>B</i>	$\beta$	<i>p</i>	<i>S4</i>
Outcome Assessments	.516	.175	.006	.171
International or Domestic	2.994	.153	.059	.118
Sex	-2.269	-.114	.096	-.103
Age	.079	.068	.306	.064
Undergraduate or Graduate	-.256	-.012	.855	-.011
English Fluency	1.766	.196	.011	.158
Perceived Stress	-.188	-.177	.007	-.170

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

In terms of individual relationships between the independent variables and *efficacy*, *outcome assessments* ( $p < .01$ ), *English language fluency* ( $p < .05$ ), and *perceived stress* ( $p < .01$ ) each significantly predict *efficacy*.

**Hypothesis 5.** A multiple linear regression analysis was performed between the dependent variable (*information seeking*) and the independent variables (*efficacy*, *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .10$ ,  $F(7, 225) = 3.75$ ,  $p < .01$ . The adjusted  $R^2$  was .08. The semipartial correlation coefficient for efficacy was .14,  $S4^2 = .02$ . In terms of the individual relationship between the independent variable, *efficacy*,



and the dependent variable, *information seeking*,  $B = .08$ ,  $p < .05^2$ . Therefore, H5 was supported. Among participants who expect to see a physician about a medical concern, domestic students and international students' efficacy in terms of communicating with physicians was significantly, positively associated with students' information seeking regarding wanting to visit with physicians.

Table 12

*Results of regression analyses with information seeking as dependent variable*

Variables	$B$	$\beta$	$p$	$S4$
Efficacy	.084	.145	.031	.137
International or Domestic	1.492	.131	.115	.100
Sex	-2.000	-.173	.014	-.156
Age	.158	.233	.001	.219
Undergraduate or Graduate	1.264	.104	.127	.097
English Fluency	.436	.083	.296	.066
Perceived Stress	.013	.021	.747	.020

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

In terms of individual relationships between the independent variables and *information seeking*, *efficacy* ( $p < .05$ ), *sex* ( $p < .05$ ), and *age* ( $p < .01$ ) each significantly predict *information seeking*.

**Hypothesis 6.** Satisfaction was measured by three variables: *satisfaction with providers*, *satisfaction with staff*, and *overall satisfaction*. A multiple linear regression analysis was performed between the dependent variable (*satisfaction with providers*) and the independent variables (*efficacy*, *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*).

Regression analysis revealed that the seven predictors explained a sizable proportion of

<sup>2</sup> To check for robustness, a Spearman rank-order correlation was carried out on *efficacy* and *information seeking*. The test revealed that there was a statistically significant positive correlation between *efficacy* and *information seeking*:  $\rho(235) = .264$ ,  $p < .001$ .

variance,  $R^2 = .14$ ,  $F(7, 250) = 5.58$ ,  $p < .001$ . The adjusted  $R^2$  was .11. The semipartial correlation coefficient for efficacy was .32,  $S4^2 = .10$ . In terms of the individual relationship between the independent variable, *efficacy*, and the dependent variable, *satisfaction with providers*,  $B = .56$ ,  $p < .001$ <sup>3</sup>.

Table 13

<i>Results of regression analyses with satisfaction with providers as dependent variable</i>				
Variables	<i>B</i>	$\beta$	<i>p</i>	<i>S4</i>
Efficacy	.562	.341	.000	.321
International or Domestic	3.375	.105	.176	.080
Sex	.598	.018	.774	.017
Age	-.093	-.046	.465	-.043
Undergraduate or Graduate	.720	.022	.741	.019
English Fluency	.034	.002	.974	.002
Perceived Stress	-.099	-.057	.351	-.055

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

A multiple linear regression analysis was performed between the dependent variable (*satisfaction with staff*) and the independent variables (*efficacy*, *international or domestic student*, *sex*, *age*, *undergraduate or graduate student*, *English language fluency*, and *perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .09$ ,  $F(7, 250) = 3.43$ ,  $p < .01$ . The adjusted  $R^2$  was .06. The semipartial correlation coefficient for efficacy was .11,  $S4^2 = .01$ . In terms of the individual relationship between the independent variable, *efficacy*, and the dependent variable, *satisfaction with staff*,  $B = .03$ ,  $p > .05$ <sup>4</sup>. While *efficacy* did not predict *satisfaction with staff*, *perceived stress* ( $p < .05$ ) did significantly predict *satisfaction with*

<sup>3</sup> A Spearman rank-order correlation test revealed that there was a statistically significant positive correlation between *efficacy* and *satisfaction with providers*:  $\rho(260) = .408$ ,  $p < .001$ .

<sup>4</sup> A Spearman rank-order correlation test revealed that there was a statistically significant positive correlation between *efficacy* and *satisfaction with staff*:  $\rho(260) = .245$ ,  $p < .001$ .

*staff*. The researcher assumes that there are conflicting findings of Spearman's rho and regression, because Spearman rank-order correlation tests are not very sensitive to outliers, which created significant correlations within Spearman's rho and not regression.

Table 14

<i>Results of regression analyses with satisfaction with staff as dependent variable</i>				
Variables	<i>B</i>	$\beta$	<i>p</i>	<i>S4</i>
Efficacy	.030	.112	.083	.105
International or Domestic	-.414	-.079	.323	-.060
Sex	-.245	-.045	.483	-.042
Age	.023	.068	.292	.064
Undergraduate or Graduate	-.261	-.048	.476	-.043
English Fluency	.146	.064	.408	.050
Perceived Stress	-.046	-.160	.011	-.155

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

A multiple linear regression analysis was performed between the dependent variable (*overall satisfaction*) and the independent variables (*efficacy, international or domestic student, sex, age, undergraduate or graduate student, English language fluency, and perceived stress*). Regression analysis revealed that the seven predictors explained a sizable proportion of variance,  $R^2 = .06$ ,  $F(7, 250) = 2.52$ ,  $p < .05$ . The adjusted  $R^2$  was .04. The semipartial correlation coefficient for efficacy was .20,  $S4^2 = .04$ . In terms of the individual relationship between the independent variable, *efficacy*, and the dependent variable, *overall satisfaction*,  $B = .13$ ,  $p < .01^5$ .

Table 15

<i>Results of regression analyses with overall satisfaction as dependent variable</i>				
Variables	<i>B</i>	$\beta$	<i>p</i>	<i>S4</i>
Efficacy	.132	.207	.002	.195
International or Domestic	1.375	.110	.171	.084
Sex	-.928	-.071	.269	-.068

<sup>5</sup> A Spearman rank-order correlation test revealed that there was a statistically significant positive correlation between *efficacy* and *overall satisfaction*:  $\rho(260) = .246$ ,  $p < .001$ .

Age	-.007	-.009	.885	-.009
Undergraduate or Graduate	.146	.011	.868	.010
English Fluency	.018	.003	.965	.003
Perceived Stress	-.046	-.069	-1.086	-.066

*Note.* The reference values are International = 1, Domestic = 0; Male = 1, Female = 0; and Undergraduate = 1, Graduate = 0.

Therefore, H6 was supported for *satisfaction with providers* and *overall satisfaction*, but not for *satisfaction with staff*. Among participants who recently consulted with a physician about a medical concern, domestic students and international students' communication efficacy with physicians was significantly, positively associated with students' satisfaction at university health services.

## Chapter 5: Discussion

More international students are coming to United States to study, but there is little research done on how these students utilize university health services and how context influences students' information seeking strategies (Sharif, 1994). This information is significant due to the recognized lack of attention paid to international students, even though international student enrollment has been increasing in numbers (Russell, Thomson, & Rosenthal, 2008). In contrast to a bulk of previous research taking a qualitative approach to the study and comparison of international and domestic university students, the present research was quantitative and attempted to accomplish three goals: (1) to increase the body of literature that exists on international students and healthcare; (2) to examine predictors of college students' information-seeking behavior in terms of utilizing university-health services; and (3) to determine if college students' efficacy in terms of communicating with physician predicted students' satisfaction with healthcare providers.

This study examined all factors leading to students' efficacy in terms of communicating with physicians, finding that it is significantly, positively associated with students' information-seeking behavior in terms of utilizing university-health services. An examination of international and domestic students' satisfaction and information-seeking activities before and after physician-patient interactions could clarify student-health communication roles. By using quantitative methods and looking at a large number of international students' versus domestic students' data through surveys, this research provides valuable insight into a subject that is largely qualitative and commonly done with small sample sets. The results show support for the TMIM as a communication

theory. In this chapter, results are summarized and findings are interpreted. The study limitations and suggestions for future research are also discussed.

### **Research Questions**

This study began by asking six research questions regarding whether or not international and domestic students differed in terms of their levels of: (1) uncertainty discrepancy, (2) current-health anxiety, (3) outcomes assessment, (4) communication efficacy, (5) proposed information seeking, and (6) satisfaction. Tests revealed significant differences between groups in terms of *current-health anxiety*, *communication efficacy*, and *satisfaction*. Specifically, compared to domestic students, international students were significantly more anxious, less efficacious, and more satisfied. The results regarding anxiety mirror prior findings that international students have more stressors (Misra & Castillo, 2004) and stress than domestic students (Ebbin & Blankenship, 1986). Jung, Hecht, and Chapman Wadsworth (2007) researched the relationship between international students' stress and depression, finding that both have increased over time. With university students' connections with depression and suicide at an all time high (ACHA, 2009), paired with suicide being the second leading cause of death for college students (Del Pilar, 2009), more research should be done to examine both international and domestic students' anxiety and stress, and ways to decrease both.

### **Hypotheses**

The Theory of Motivated Information Management (Afifi and Weiner, 2004) served as the conceptual and predictive foundation for this study. The TMIM was ideal compared to existing uncertainty frameworks, because rather than overlook the role of efficacy, it was used directly in the information management model (Afifi and Morse,

2009). Along these lines, this study examined the information-management process, starting with students' uncertainty discrepancy about their current health concerns. Using TMIM, this student hypothesized that uncertainty discrepancy will increase students' current-health anxiety. According to TMIM, students' current-health anxiety should negatively affect both their assessments of the possible outcomes of an information search, as well as their efficacy in terms of communicating with physicians. Finally, students' efficacy should be positively associated with both their information-seeking behavior and their satisfaction.

All of the aforementioned hypotheses were supported. First, students' uncertainty discrepancy was significantly, positively associated with their current-health anxiety. Independent from (i.e. controlling for) uncertainty discrepancy: (1) International students were significantly more anxious than domestic students (as noted above); (2) Male students were significantly, positively associated with current-health anxiety. Second, students' current-health anxiety was significantly, negatively associated with their communication efficacy. Independent from (i.e., controlling for) current-health anxiety: (1) Domestic students were significantly more efficacious than international students; (2) Male students were significantly more efficacious than female students; (3) English fluency was significantly, positively associated with efficacy; and (4) Perceived stress was significantly, negatively associated with efficacy.

### **Limitations and Suggestions for Future Research**

Health communication has surfaced as an important perspective on the future of healthcare and the well being of patients (Kreps & Atkin, 1991). Communication has proven vital in healthcare contexts, and has been association with many health-related

factors, including better health, patient satisfaction, health outcome assessments, and even malpractice (Arntson & Droge, 1988). Good health communication and accessible university health services continue to be important for students' success with new college pressures, such as additional stress caused by competition for college beginning at an earlier age (Hoff, 2002), increased tuition costs, and interacting with diverse populations (Cantor, 2003). While this study aimed to help students and university health services in health communication, this study is limited in at least three ways, which are discussed below.

### **Limitation 1**

The sample size would have benefited from being larger and more representative of the larger population. Enrollment in Fall 2011 was 29,703 (23,222 undergraduate and 6,481 graduate students), with 1,937 international students making up 6.5 percent of the student population (Portland State University, 2011). Four hundred and sixty-six respondents completed the survey instrument, 265 domestic students (57%), and 201 international students (43%). Among the 466 participants, 317 (68%) were undergraduate students, and 149 (32%) were graduate students. Both international students and graduate students are overrepresented in the sample. All efforts were made to encourage all students to take the survey.

A recommendation for future research is to conduct the survey during regular school seasons (i.e. Fall, Winter, or Spring) when more undergraduate and domestic students are on campus, versus when this survey was conducted (Summer). Future studies should include a larger sample of undergraduate and domestic students. While much of



the data is similar to data found nationally, it is not possible to generalize these findings since this sample was taken from only one university.

### **Limitation 2**

Because of limited background or training in certain areas, scales were utilized that would have carried more validity or reliability with more preparation. The studies offered only a partial test of the TMIM framework. A failure to achieve adequate reliability levels for the uncertainty discrepancy scale prohibited a complete analysis, suggesting that additional measurement work is needed before complete tests of the TMIM framework are possible. Also, more questions would have improved reliability and validity for the outcome-assessments scale. Regardless, the results of this study provide insight on the use of the TMIM, and the other scales were proven reliable.

Future studies should assess the questions in the uncertainty discrepancy and outcome assessments scales.

### **Limitation 3**

To ensure enough usable data would be available at the end of the study, questions were asked about both a current health concern and a past health concern. Participants and their data may have benefited from focusing on just one aspect for the study. Also, it is somewhat uncommon to ask about pre-interaction efficacy, without following afterwards about the specific information seeking activity. As such, it is unclear whether the subject does execute information seeking behavior by going to university health services, because there was no follow up with the individual. A follow-up survey was not used because of the lack of time. Also, more of the data would have been unusable if part of the sample did not return to take the second survey. This

limitation is not as problematic as it initially might seem, as it still provided good information about the subjects' information management process.

In future studies, focusing on either a current health concern or a past health concern may be more beneficial for the study. Also, tracking students over time using longitudinal research designs may provide a more inclusive perspective. Finally, all data was self-report which may have affected the information given, which could not be verified.

### **Application**

These findings can be applied practically with the suggestion that university health services provide more information and applications on the Internet. As the percentage of Internet users continues to grow, the Internet will very likely become important as a source of health information for consumers. In 2009, 51% of adults reported that they had used the Internet to look up health information during the past 12 months (Cohen & Stussman, 2010). College health services should allow their students to schedule appointments online (with doctors' information available during scheduling), ask general health questions anonymously, and ask specific questions about their health insurance and costs.

In addition to that, after appointments, college-health services should also allow students to communicate with their doctor over the Internet, view their medical records, and refill prescriptions. Having more information and tasks available online from a trusted source (e.g. college health services) would reduce patient anxiety and stress. Having patient medical records available online and allowing quick communication with this technology better assists physicians to focus towards better patient-doctor

relationships (Safran, Sands, & Rind, 1999). This application may have considerable impact on students visiting for health concerns, university health services' advertising and day-to-day operations, and overall student health.

### **Conclusion**

This study succeeded its goals to increase the body of literature that exists on international students and healthcare, analyze reported levels of satisfaction and efficacy for college students, and examine individuals' information-seeking behavior as it relates to going to university health services. An examination of students' information seeking and experiences with university health services opens opportunities for a myriad of studies. For example, this information could help to facilitate potential improvements that may be made in a broad spectrum of contexts, including focusing on what areas to improve upon in regards to patient efficacy and satisfaction, and to improve student-patient care by discovering positive physician communication techniques that will enable the development of an effective patient-physician relationship. This study and future research could significantly aid university health centers, as well as their patients, including both international and domestic students. In conclusion, the results of this study offer insight into both predictors and outcomes of international and domestic students regarding university health services, for past and future visits.

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## Appendices

### Appendix A

#### Email to International Students

Subject: Survey for International Students-Win a \$25 gift certificate

Dear fellow students,

My name is Stacy Austin. I am a Master's student in the Department of Communication at PSU. I am conducting research on international and domestic students' experiences with university health services. The potential benefit for you is an opportunity to share your experiences and opinions to help improve services. Could you please take 10 minutes of your time to fill out the survey?

This survey data will be kept strictly confidential and information gathered will only be available to the researcher.

At the end of the survey, you may choose to leave an email address to possibly win one of four \$25 gift cards. If you choose to leave your email address, your information will still remain anonymous. You will only be contacted by email if you are chosen as a winner.

Here is the link to my survey. <<<link to the survey>>>>

If this link does not work, please copy the following URL and paste it into your browser:  
<<<link to the survey>>>

Thank you in advance. I really appreciate your help and input.

**Appendix B**

## Reminder Email to International Students

Subject: Survey for International Students-Win a \$25 gift certificate

Dear fellow students,

My name is Stacy Austin. I am a Master's student in the Department of Communication at PSU. Thank you for participating in my study on international and domestic students' experiences with university health services. I really appreciate that so many students took the time to complete the survey. It means a lot to me and it helps for better understanding about international students at PSU. If you have not participated in my research yet, please take 10 minutes of your time to fill out the survey.

This survey data will be kept strictly confidential and information gathered will only be available to the researcher.

Don't miss the chance to win one of four \$25 gift cards.

Here is the link to my survey. <<<link to the survey>>>>

If this link does not work, please copy the following URL and paste it into your browser:  
<<<link to the survey>>>

Thank you in advance. I really appreciate your help and input.

## Portland State University HSRRC Memorandum

**To:** Stacy Austin

**From:** Mary Oschwald, Chair, HSRRC 2012

**Date:** February 28, 2012

**Re:** Your HSRRC application titled, “International Students' Experiences with Student Health Services” (HSRRC Proposal #122026)

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In accordance with your request, the Human Subjects Research Review Committee has reviewed your proposal referenced above for compliance with DHHS policies and regulations covering the protection of human subjects. The committee is satisfied that your provisions for protecting the rights and welfare of all subjects participating in the research are adequate, and your project is approved.

Please note the following requirements: none

**Changes to Protocol:** Any changes in the proposed study, whether to procedures, survey instruments, consent forms or cover letters, must be outlined and submitted to the Chair of the HSRRC immediately. The proposed changes cannot be implemented before they have been reviewed and approved by the Committee.

**Continuing Review:** This approval will expire one year from the approval date. It is the investigator's responsibility to ensure that a *Continuing Review Report* (available in ORSP) of the status of the project is submitted to the HSRRC two months before the expiration date, and that approval of the study is kept current.

**Adverse Reactions:** If any adverse reactions occur as a result of this study, you are required to notify the Chair of the HSRRC immediately. If the problem is serious, approval may be withdrawn pending an investigation by the Committee.

**Completion of Study:** Please notify the Chair of the Human Subjects Research Review Committee (campus mail code ORSP) as soon as your research has been completed. Study records, including protocols and signed consent forms for each participant, must be kept by the investigator in a secure location for three years following completion of the study.



If you have questions or concerns, please contact the HSRRC in the Office of Research and Strategic Partnerships, Market Center Building, Suite 620, 1600 SW Fourth Ave, Portland OR 97207 (503)725-3423.

cc: Anne Stephenson, Jeff Robinson

## **Appendix D**

### **Student Consent**

You are invited to participate in a research study conducted by Stacy Austin from Portland State University, Department of Communication. I am conducting research on international and domestic students' experiences with university student health services. The potential benefit for you is an opportunity to share your experiences and opinions to help improve services. If you decide to participate, you will be asked a series of questions in this Internet survey. The data will be sent directly to the researcher and all information will be kept confidential with no disclosure of your identity.

Thank you for your willingness to participate in this research project. Before you start the survey, I would like to reassure you that as a participant in this project you have several very definite rights. Your participation is entirely voluntary. You are free to refuse to answer any question at any time. You are free to withdraw from the survey at any time without any penalty. This survey data will be kept strictly confidential and information gathered will only be available to the researcher. Your participation or decision not to participate will not affect your relationship with PSU or any of its departments or units, including the Student Health And Counseling Center or the International Student Life Team.

You may choose to leave an email address to possibly win one of four \$25 gift cards. If you choose to leave your email address, your information will still remain anonymous. You will only be contacted by email if you are chosen as a winner.

This is not a test! There is no right or wrong answer. You can use a dictionary if necessary. It will take 10 to 15 minutes to complete the survey. Important: when you answer questions, please answer by yourself (do not consult with your friends).

This project is overseen by the Department of Communication at Portland State University and this study is being conducted in partial fulfillment of the requirements for a Master's degree in the Communication Studies program. I am the principal investigator of this project and I may be contacted at this email address [stacya@pdx.edu](mailto:stacya@pdx.edu) or please feel free to contact the Human Subjects Research Review Committee, Office of Research and Strategic Partnerships, Market Center Building, Room 620, Portland State University, (503) 725-4288 or 1-877-480-4400 should you have any questions.

## Appendix E

### Demographics

Please read the following instructions carefully and answer all questions. Thank you.

1. Are you an international student at Portland State University? An international student is defined as a student that is not a citizen or permanent resident of the United States.
  - ☐ Yes
  - ☐ No
2. What is your gender?
  - ☐ Male
  - ☐ Female
3. What is your age in years?
4. Are you an undergraduate or graduate student?
  - ☐ Undergraduate
  - ☐ Graduate
5. What country were you born in?
6. If the country listed above is not the United States, how many years did you live in that country before moving to the United States?
7. What would you consider to be your native language(s)?
8. How fluent do you consider yourself to be in English?
  - ☐ Basic proficiency
  - ☐ Limited Working proficiency
  - ☐ Professional Working proficiency
  - ☐ Full Professional proficiency
  - ☐ Native or Bilingual proficiency
9. How long have you lived in the United States? (Example: 1 year, 2 months)
  - ☐ Number of years \_\_\_\_\_
  - ☐ Numbers of months \_\_\_\_\_

## Appendix F

### Efficacy

Bandura (2004) explained that the greater the perceived efficacy, the higher the goals people set for themselves and the more people are committed to achieving them.

For the following questions, please indicate your level of confidence: (1) Completely Not Confident, (2) Moderately Not Confident, (3) Slightly Not Confident, (4) Neutral, (5) Slightly Confident, (6) Moderately Confident, (7) Completely Confident

Original Question	Modified Question
1. How confident are you in your ability to get a doctor to pay attention to what you have to say?	How confident are you in your ability to get a doctor/nurse to pay attention to what you have to say?
2. How confident are you in you ability to know what questions to ask a doctor?	How confident are you in you ability to know what questions to ask a doctor/nurse?
3. How confident are you in your ability to get a doctor to answer all your questions?	How confident are you in your ability to get a doctor/nurse to answer all your questions?
4. How confident are you in your ability to ask a doctor questions about your chief health concern?	How confident are you in your ability to ask a doctor/nurse questions about your primary health/medical concern?
6. How confident are you in your ability to get a doctor to take your chief health concern seriously?	How confident are you in your ability to get a doctor/nurse to take your primary health/medical concern seriously?
7. How confident are you in your ability to understand what a doctor tells you?	How confident are you in your ability to understand what a doctor tells you?
8. How confident are you in your ability to get a doctor to do something about your chief health concern?	How confident are you in your ability to get a doctor/nurse to do something about your primary health/medical concern?
9. How confident are you in your ability to explain your chief health concern to a doctor?	How confident are you in your ability to explain your primary health/medical concern to a doctor/nurse?
10. How confident are you in your ability to ask a doctor for more information if you don't understand what he or she said?	How confident are you in your ability to ask a doctor/nurse for more information if you don't understand what he or she said?

## **Appendix G**

### **Perceived Stress**

Stress was measured using the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983).

Thinking about your feelings, thoughts and activities during the last month, including today, please answer the following questions on a seven-point scale, where 1 equals "Never" and 7 equals "Always." In the last month, how often have you... (1) Never, (2) Almost Never, (3) Sometimes, (4) Fairly Often, (5) Very Often, (6) Usually, (7) Always.

1. Been upset because of something that happened unexpectedly?
2. Felt that you were unable to control important things in your life?
3. Felt nervous and "stressed?"
4. Felt confident about your ability to handle your personal problems?
5. Felt that things were going your way?
6. Found that you could not cope with all things you had to do?
7. Been able to control irritations in your life?
8. Felt that you were on top of things?
9. Been angered because of things that happened that were out of your control?
10. Felt difficulties were piling up so high that you could not overcome them?

**Appendix H****General Questions Regarding Future Visit**

If participants answered positively about a possible future medical visit, they answered the following questions.

1. Thinking about your current health/medical concern, what is the primary or most important reason for visiting the doctor/nurse? PLEASE CHOOSE ALL THAT APPLY.

- ☐ Cold and flu, including cough, runny nose, sore throat, or sinus infection
- ☐ Physical injury
- ☐ Problem with eyes/vision
- ☐ Problem with skin (e.g. rash)
- ☐ Problem with stomach
- ☐ Problem with back
- ☐ Problem with ears
- ☐ Problem with breathing (e.g. asthma)
- ☐ Problem with stress
- ☐ Diet and nutrition
- ☐ General physical exam
- ☐ Problem with medication (including refills)
- ☐ Sexual health
- ☐ Medical tests (e.g. cholesterol)
- ☐ Headache/migraine
- ☐ Counseling
- ☐ Measles vaccination or test
- ☐ Depression
- ☐ Other

2. Please indicate the level of severity of your recent medical concern.

- ☐ Very Mild
- ☐ Somewhat Mild
- ☐ Moderate
- ☐ Somewhat Severe
- ☐ Very Severe

## **Appendix I**

### **Uncertainty Discrepancy**

Ramirez, Walther, Burgoon and Sunnafrank (2002) operationalized uncertainty to mean, “a cognitive state that fluctuates based on the discrepancy between the information desired and the quality of that acquired” and “uncertainty is viewed as a gauge for monitoring information-seeking effectiveness” (p. 217). Uncertainty is the space between the information a source obtains about a target and the information still needing to be uncovered in order to be able to make predictions, assumptions, and determinations about the target. According to Berger, the motivation to reduce uncertainty is constant and helps predict communication outcomes (Berger & Bradac, 1982, Berger & Calabrese, 1975).

If participants answered positively about a possible future medical visit, they answered the following questions.

Thinking about your current health/medical concern, please indicate your level of agreement with the following statements: (1) Strongly Disagree, (2) Moderately Disagree, (3) Slightly Disagree, (4) Neutral, (5) Slightly Agree, (6) Moderately Agree, (7) Strongly Agree.

1. I know less than I would like to about my health/medical concern.
2. It is important that I know more about my health/medical concern.

Still thinking about your current health/medical concern, please answer the following questions: (1) Nothing, (2) Not A Lot, (3) Some, (4) A Lot, (5) Everything.

3. How much information do you know about your health/medical concern?
4. How much information do you want to know about your health/medical concern?

## Appendix J

### Anxiety

Afifi and Weiner (2006) explained that “anxiety leads to negative outcome expectancies and lowers perceptions of efficacy, which, in turn, inhibits direct information seeking” (p. 48).

If participants answered positively about a possible future medical visit, they answered the following questions.

Still thinking about your current health/medical concern, please answer the following questions: (1) Not At All Anxious, (2) Moderately Not Anxious, (3) Slightly Not Anxious, (4) Neutral, (5) Slightly Anxious, (6) Moderately Anxious, (7) Extremely Anxious.

1. How anxious does it make you to think about how much you want to know versus how much you actually know about your health/medical concern?
2. How anxious does it make you to think about how much/how little you know about your health/medical concern?

Still thinking about your current health/medical concern, please indicate your level of agreement with the following statements: (1) Strongly Disagree, (2) Moderately Disagree, (3) Slightly Disagree, (4) Neutral, (5) Slightly Agree, (6) Moderately Agree, (7) Strongly Agree.

3. My heart beats fast with anxiety when I think about how much/little I know about my health/medical concern.
4. Thinking about how much/little I know about my health/medical concern is calming.



## **Appendix K**

### **Outcome Assessments**

According to Afifi and Weiner (2004), the outcome assessments are outlined as the proposed costs and benefits of a certain strategy used in seeking information (p. 176).

If participants answered positively about a possible future medical visit, they answered the questions below.

Still thinking about your current health/medical concern, please indicate your level of agreement with the following statement: (1) A lot more negatives than positives, (2) Moderately more negatives than positives, (3) A few more negatives than positives, (4) About as much negatives as positives, (5) A few more positives than negatives, (6) Moderately more positives than negatives, (7) A lot more positives than negatives.

1. I feel that visiting SHAC will produce...
2. I feel that talking to the doctor/nurse about my health concern will produce...

## **Appendix L**

### **Information Seeking**

Many information seeking models and definitions are available, but most follow the idea that information seeking is practiced when a person experiences uncertainty, which prompts them to seek additional information (Case, 2002).

If participants answered positively about a possible future medical visit, they answered the questions below.

Still thinking about your current health/medical concern, please indicate your level of agreement with the following statement: (1) Not Important, (2) Of Little Importance, (3) Neutral, (4) Important, (5) Very Important.

1. Talking to a doctor/nurse about my current medical concern is...

Still thinking about your current health/medical concern, please indicate your level of agreement with the following statement: (1) Strongly Disagree, (2) Moderately Disagree, (3) Slightly Disagree, (4) Neutral, (5) Slightly Agree, (6) Moderately Agree, (7) Strongly Agree.

2. I intend to talk to a doctor/nurse about my current medical concern.
3. It is important that I talk to a doctor/nurse about my current medical concern.
4. I am committed to talking to a doctor/nurse about my current medical concern.

**Appendix M****General Questions Regarding Past Visit**

If participants answered positively about having a past medical visit with university health services, they answered these questions.

For the following questions, please think about your last visit to PSU's Student Health Center.

1. Think back on your last visit at PSU's Student Health Center. What was your primary or most important reason for visiting the doctor/nurse? PLEASE CHOOSE ALL THAT APPLY.

- ☐ Cold and flu, including cough, runny nose, sore throat, or sinus infection
- ☐ Physical injury
- ☐ Problem with eyes/vision
- ☐ Problem with skin (e.g. rash)
- ☐ Problem with stomach
- ☐ Problem with back
- ☐ Problem with ears
- ☐ Problem with breathing (e.g. asthma)
- ☐ Problem with stress
- ☐ Diet and nutrition
- ☐ General physical exam
- ☐ Problem with medication (including refills)
- ☐ Sexual health
- ☐ Medical tests (e.g. cholesterol)
- ☐ Headache/migraine
- ☐ Counseling
- ☐ Measles vaccination or test
- ☐ Depression
- ☐ Other

2. Please indicate the level of severity of your last medical concern.

- ☐ Very Mild
- ☐ Somewhat Mild
- ☐ Moderate
- ☐ Somewhat Severe
- ☐ Very Severe

## Appendix N

### Satisfaction

Arntson (1985) clearly defined patient satisfaction as a measurement of how well a physician fulfills the patient's expectations in the medical consultation.

Satisfaction was measured using a similar scale to the Patient Experience Measures from the CAHPS® Clinician and Group Survey (U.S. Department of Health and Human Services, 2011).

If participants answered positively about having a past medical visit with university health services, they answered the following questions.

Thinking back on your last visit to SHAC, please rate the following statements: (1) Never, (2) Almost Never, (3) Sometimes, (4) Fairly Often, (5) Very Often, (6) Usually, (7) Always.

Original Statement	Modified Statement	Variable Tapped
Provider explained things in a way that was easy to understand.	The doctor/nurse explained things in a way that was easy to understand.	How well providers (or doctors) communicate with patients. (Measures for the Child 12-Month Survey)
Provider listened carefully to respondent.	The doctor/nurse listened carefully to me.	
Provider gave easy to understand information about health questions or concerns.	The doctor/nurse gave easy to understand information about health/medical questions or concerns.	
Provider knew important information about child's medical history.	The doctor/nurse knew important information about my medical history.	
Provider showed respect for what respondent had to say.	The doctor/nurse showed respect for what I had to say.	
Provider spent enough time with child.	The doctor/nurse spent enough time with me.	
Provider interrupted patient while patient was talking.	The doctor/nurse interrupted me when I was talking.	Cultural competence item set (Providers are polite and considerate).
Provider talked too fast.	The doctor/nurse talked too fast.	
Provider used a condescending, sarcastic, or	The doctor/nurse used a condescending, sarcastic, or	

rude tone or manner with patient.	rude tone or manner with me.	
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Patient could tell provider anything.	I could tell my doctor/nurse anything.	Cultural competence item set (Providers are caring and inspire trust).
Patient could trust provider with medical care.	I could trust my doctor/nurse with medical care.	
Provider always told patient truth about health.	The doctor/nurse told me the truth about my health.	
Provider cared as much as patient about health.	The doctor/nurse cared as much as I did about my health.	
Provider cared about patient as a person.	The doctor/nurse cared about me as a person.	

Still thinking about your last visit to SHAC, please rate the following statements: (1) Never, (2) Almost Never, (3) Sometimes, (4) Fairly Often, (5) Very Often, (6) Usually, (7) Always.

Original Statement

Modified Statement

Variable Tapped

Clerks and receptionists helpful.	The SHAC clerks and receptionists were helpful.	Helpful, courteous and respectful office staff.
Clerks and receptionists courteous and respectful.	The SHAC clerks and receptionists were courteous and respectful.	

Still thinking about your last visit to SHAC, please indicate your level of agreement with the following statements: (1) Strongly Disagree, (2) Moderately Disagree, (3) Slightly Disagree, (4) Neutral, (5) Slightly Agree, (6) Moderately Agree, (7) Strongly Agree.

Statement

Variable Tapped

Overall, I am satisfied with my last visit to SHAC.	Overall satisfaction with visit.
I plan on using SHAC in the future.	Future use.
I would recommend SHAC to international students.	Recommendation to others.
I would recommend SHAC to non-international students.	

## **Appendix O**

### End of Survey

Thank you for participating in the survey.

If you are sick and need medical assistance, you can call the Center for Student Health and Counseling (503-725-2800) or visit them at 1880 SW 6th Avenue, Portland, OR 97201 (Monday – Thursday: 8 a.m. – 6 p.m., Fridays: 9 a.m. to 5 p.m., or Saturday for urgent care needs: 9 a.m. to 1 p.m).

By completing this survey, you have a chance to win a \$25 gift card. Four participants will be chosen as winners by lottery. Even if you win the gift card, the researcher will not know who you are and what your answers are; you will be contacted by the Communication Department Office.

Would you like to join in the lottery? If yes, you will need to input your Portland State University e-mail address (e.g. [name@pdx.edu](mailto:example@pdx.edu)).

- ☐ No
- ☐ Yes