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# Evaluating the Student Health Needs at Dalton State College

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Evaluating the Need for Student Health Services at Dalton State College

Cheryl W. Owens

Georgia College and State University

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### Abstract

The incidence of chronic diseases in college students mirrors that of older adults. Yet despite the enactment of the Affordable Care Act (ACA), college students continue to have difficulty accessing medical care. Many have no insurance, limited transportation and inadequate finances during college to obtain medical care. While college health centers may improve access to care, smaller colleges often do not have the financial and personnel resources to provide student health services. Even in colleges that provide student health services, the focuses are primarily on sexual health, mental health, violence, and substance abuse. Prevention and treatment of chronic diseases services are rarely offered. Lack of access to affordable preventative care during college increases the student's risk of life-threatening health changes. These changes can be irreversible and affect the students for the remainder of their lives thereby increasing the future healthcare burden for the nation.

The Built Framework for Nursing Research provided the framework for this translational project. The framework assesses the issues that improve or undermine health promotion in a community. These include the walkability of the campus, proximity of health services, and student health issues.

To determine the health needs of students at Dalton State College, an electronic survey of student health needs was conducted. This survey sought to determine the most common chronic and acute medical and mental health needs of students, barriers to accessing care and need for health services on campus. Approximately 18% of students (n = 736) completed the survey. One fourth of students had no medical insurance and 30% had no primary care provider. Over 50% of students were overweight and 37% had at least one chronic medical condition. Age and BMI showed a statistically significant correlation to both acute and chronic health needs, the number

of visits to a primary care provider, and the likelihood to use a student health center. The majority of students (90%) felt a health center was needed. The results from the health assessment will be used to develop a proposal for evidence based student health services.

New knowledge gained from this project included the assessment of specific chronic health needs of college students and the correlation between having a primary care provider and acute and chronic health needs. Recommendations for future research on this area center on the assessment of chronic mental and physical health needs of students and need based student health programs. Resources to assist smaller colleges in starting health centers are also needed.

**Key Words:**

**Student health needs-** history of medical and mental health problems self-reported by students

**DSC Student Health Needs Survey-** an electronic survey developed specifically for this survey to determine demographic data, health needs, and need for student health center.

## **Chapter I**

### **Introduction**

Government programs and college campuses have failed to meet the health care needs of many college-aged young adults (Collins, Robertson, Garbar, & Doty, 2012). Even though college students battle asthma, diabetes, and cancer in rates very similar to the general population, most students lack a needed resource to obtain medical care such as medical insurance or the finances to pay for care (Collins et al., 2012; Olson & Autio, 1999). In addition to financial resources, students may lack the transportation to get to health care providers located off college campuses (Woolard & Donahue, 1995). For students, lacking any one of these resources limits medical care (de Chesney & Anderson, 2012). Due to their age and sociocultural status, students not only have trouble locating health care providers but also being able to pay for health care (de Chesney & Anderson, 2012). Collins et al. (2012) found that 40% of college-age young adults with medical insurance did not seek needed medical care due to concern about costs. In young adults without insurance, 60% did not get needed medical care due to costs (Collins, 2012).

Lack of access to affordable care during their college years can lead to irreversible and potentially life-threatening health changes. These health problems can affect students for the remainder of their lives (Gow, Trace, & Mazzeo, 2010; Morrell, Lofgren, Burke, & Reilly, 2012). No recent data was available regarding student health services at community colleges. At the time of the last survey, less than half of all community colleges offered student health services (Ottenritter, 2002). In a similar survey, Koumans et al. (2005) found only 60% of all colleges and universities operated a student health center. Half of these centers were funded by a mandatory student health fee (Koumans et al., 2005)

There are 13, four-year, state undergraduate colleges in the University System of Georgia (USG), including Dalton State (University System of Georgia, 2014.). USG requires mandatory health insurance for only two groups of undergraduate students, international students and students enrolled in programs that require health insurance (University System of Georgia, 2013). Seven state colleges, which offered residence housing, with Spring 2014 enrollments between 3,000 and 5,000 students were used for comparison. Only two of those colleges currently offer student health services and both colleges utilize nurse practitioners (NPs) as primary care providers. Darton State College Health Clinic is staffed by four NPs and a medical assistant. This clinic provides treatment and screening for acute health illnesses. Health fees are included in the housing fees for dormitory students. Non-residential housing students can also pay a \$20.00 per visit fee or a \$40.00 fee per semester. All visits to the NP are covered by the health fee. Any laboratory tests result in an additional charge to the student (“Student Health Center”, n.d.). Gordon State College Health Clinic is staffed by one NP who can screen for minor illnesses such as influenza, strep throat, and urinary tract infections as well as treat minor injuries. A physician is available one hour per week for appointments. Students pay a \$10.00 health fee per semester (“Health Center”, n. d.) See Table 1 below.

Table 1

*State Colleges with <5,500 Students Enrolled*

Institution	Student Health Services Offered	Health Insurance Required	Student Health Fee	Website
Abraham Baldwin Agricultural College	No	No	No	<a href="http://www.abac.edu">http://www.abac.edu</a>
Dalton State College	No	No	No	<a href="http://www.daltonstate.edu">http://www.daltonstate.edu</a>
Darton State College	YES	YES	YES	<a href="http://www.darton.edu">http://www.darton.edu</a>
East Georgia College	No	No	No	<a href="http://www.ega.edu">http://www.ega.edu</a>

Table1 continues

Georgia Highlands College	No	No	No	<a href="http://www.highlands.edu">http://www.highlands.edu</a>
Gordon State College	YES	YES	YES	<a href="http://www.gordonstate.edu">http://www.gordonstate.edu</a>
South Georgia State College	No	No	No	<a href="http://www.sgsc.edu">http://www.sgsc.edu</a>

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Illnesses or injuries during college affect students academically and financially. Over one third of college students have outstanding medical debts in excess of \$1000, which can force the student to interrupt their education to pay their medical bills (Collins et al., 2012). Additionally, approximately 50% of students also report they do not seek medical treatment because of finances (Anderson, Dobkin, & Gross, 2013; Collins et al., 2012).

Dalton State College (DSC) is a four-year, public institution in the University System of Georgia, located in northwest Georgia. The average enrollment is approximately 5,000 students with two-thirds of the students being full-time students less than 25 years old (Dalton State College, 2013). For the 2013-2013 academic year, 81.9% of students received financial aid. Almost two-thirds (64%) received the Pell Grant and 36% received student loans (H. Woods, personal communication, October 22, 2014). The student body is 67% white. Hispanics students comprise 19% of the student population. Approximately 60% of the student body is female and almost half of the students are residents of Whitfield County (Dalton State College, 2013). DSC has 160 faculty and 173 staff members (Dalton State College, 2013). The student to faculty ratio is 23:1 (Dalton State College, 2013). In academic year 2013-2014, DSC reinstated college athletics after a 30 year absence. Currently, the Roadrunners field nine teams including men's basketball, men's and women's golf, tennis, and cross country and competitive cheerleading.

During academic year 2008-2009 an opportunity arose to purchase an apartment complex adjacent to campus. The DSC Foundation made the decision to purchase this complex and to give the apartments to the college to be used as residential housing. Approximately 250 students

currently reside in campus housing. In the academic year 2009-2010 when residential housing opened, Whitfield County Health Department offered a weekly health clinic for students. That program ended at the end of academic year 2010-11 because of budget cuts, leaving students without access to regular health services. With the exception of mental health and counselling, no student health services are currently provided by the college (Dalton State College, 2013).

The student population at DSC is comprised of two groups that are at high risk to be without medical coverage, traditional aged college students and unemployed adults. Despite a provision in the Affordable Care Act that allows dependents under age 26 to remain on their parents medical insurance, young adults remain the highest uninsured age group in the United States (Collins et al, 2012). Approximately thirty percent of adults 18-26 are without medical insurance (Centers for Disease Control and Prevention [CDC], 2013a). Approximately three-fourths of students at DSC are under the age of 25. A second group, the unemployed, nontraditional students returning to school due to the economic downturn, is likely to be without health insurance (Georgia Department of Labor [GDOL], n.d.; Prescott, 2011; Runyon, 2012). Approximately 1300 students are non-traditional college aged students at DSC.

### **Identification of Challenges, Problems, Situations, and Opportunities Leading to the Project**

The Student Government Association (SGA) made a formal request for a student health center to the college administration (J. Johnson, personal communication, November 19, 2013). This organization is comprised of student representatives elected by the student body as well as officers from the registered student organizations on campus. Students who felt there was a need for campus health services approached SGA members.



During academic year 2013-2104, several students living in residential housing needed medical treatment but did not have transportation to a health care facility. Since there was no public transportation in the area, residence hall advisors had to call public safety to transport the ill or injured students to a health care facility (J. Johnson, personal communication, November 19, 2013).

In addition, the faculty members of the School of Health Professions, who are mostly registered nurses, are often asked by students and faculty to provide health procedures, such as assessing blood pressure, temperature, and evaluating and treating minor injuries. This situation poses a potential liability for faculty members and the college. A campus health center would allow faculty to refer students to the clinic for care, reducing faculty and college liability.

Finally, faculty members of the School of Health Professions actively seek clinical sites that could offer varied clinical experiences for their students. A student health center could provide an outpatient service learning opportunity for the nursing, medical assisting, and respiratory therapy programs.

### **Purpose of the Project**

The purpose of this translational project was to conduct a student health assessment on the campus of DSC. These data will be used to formulate proposal for the development of student health services at DSC.

### **Student Health Assessment Survey**

The Student Health Assessment Survey was the preliminary step in the development of a student health clinic. Within this cross-sectional survey design, this assessment addressed the following specific aims and subsequent clinical questions.

### **Specific Aims and Research Questions of the Student Health Assessment Survey**

Within a cross-sectional survey design, this study addressed the following specific aims and associated research questions:

#### **Specific Aim I: Identify the common medical problems of students at Dalton State College**

**Clinical question 1:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, what were the most common chronic health needs of students?

**Clinical question 2:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, what were the most common acute health needs of students?

**Clinical question 3:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, what were the medical needs of students related to drug and alcohol use?

**Clinical question 4:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, were there any demographic or socioeconomic factors that correlated with more acute health needs of students?

**Clinical question 5:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, were there any demographic or socioeconomic factors that correlated with more chronic health needs of students?

#### **Specific Aim II: Explore the relationship between the identified healthcare needs of students at Dalton State College and having a primary care provider**

**Clinical question 6:** Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and went regularly to see the primary healthcare provider, have fewer chronic health needs or concerns

than students who that do not have a primary healthcare provider or have not seen a provider within the past 18 months?

**Clinical question 7:** Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and go regularly to see the primary healthcare provider, have fewer acute health needs or concerns than students who that did not have a primary healthcare provider or have not seen a provider within the past 18 months?

**Clinical question 8:** Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and go regularly to see the primary healthcare provider, have fewer health needs or concerns related to drug and alcohol use than students who that did not have a primary healthcare provider or have not seen a provider within the past 18 months?

**Clinical question 9:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, were there any demographic or socioeconomic factors that correlated with students easily identifying and regularly seeing their health care provider within the past 18 months?

**Specific Aim III: Identify the need for a student health center at Dalton State College**

**Clinical question 10:** Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what percentage of students felt a student health center was needed?

**Clinical question 11:** Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what percentage of students would likely use a student health center?

**Clinical question 12:** Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what services would students want to have available in a student health center?

**Clinical question 13:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, were there any demographic or socioeconomic factors that correlated with students' intent to use a student health center?

### **Literature Review**

A review of the literature was conducted using CINAHL, ProQuest Nursing, Psych Info, Medline, Google Scholar, and Government databases. The search was initially limited to the years 2008 through 2013 but due to the small number of articles located related to student health centers, the period was broadened to include articles from 1995 to present.

The majority of research articles related to student health focus on four topics, substance use and abuse, violence, sexually transmitted diseases, and mental health (Gow et al., 2010; Eisenberg et al., 2012; Sander, 2013; Yorgason, Linville, & Zitzman, 2008). Students also reported most health promotion programs on college campuses were related to these topics (American College Health Association [ACHA], 2013b). Literature related to student health centers is sparse with most articles providing a historical perspective of college health. Articles were divided into the following categories, student health assessment, student health services, benefits of student health services and research implications.

#### **Student Health Assessment**

The ACHA conducts the National College Health Assessment (NCHA), a survey of college student health during spring and fall semesters each year. Since 2000, 624 institutions and over one million students have participated in the survey (American College Health

Association [ACHA], 2013a). In addition to demographic data, data from the NCHA provides information on episodic diseases of college students as well as health promotion and risk behaviors. Limited information on chronic diseases is collected in this survey. Information from the NCHA survey can assist colleges in identifying student health issues that affect academic performance. Survey results also help participating institutions develop evidence-based health programs (ACHA, 2013b).

In addition to the NHCA, other agencies provide national data on various health risks related to college-aged students. Government agencies such as the Centers for Disease Control (CDC) and the Department of Health and Human Services (HHS) collect and monitor data on young adults. The Commonwealth Fund Health Insurance Tracking Survey of Young Adults, also compiles medical and insurance data on a representative sample of the United States population between the ages of 19 and 29 (Collins et al., 2013). In addition to independent research, these resources are valuable in providing a broad picture of health issues facing the college student.

Many of our college students have chronic illnesses such as diabetes, cardiovascular related diseases, cancer, and asthma. It is estimated that 15% of young adults have a chronic disease and approximately half have at least one risk factor for developing metabolic syndrome (ACHA, 2013b; Collins et al., 2012; Dallack & Kjelland, 2012; Morrell, et al, 2013, Prescott, 2011). Approximately 10% of college students characterize their health as only fair or poor (ACHA, 2013b; Zulig, 2005).

Approximately one-third of college students are overweight or obese (ACHA, 2013b; Morrell et al, 2012). However, rates of obesity in certain groups of college students are even higher. Singleton et al. (2011) reported an obesity rate of almost 45% among African American

nursing students. A large-scale screening of 2,722 college students, found that 47% of men and 27% of women were obese (Morrell et al., 2012). First year college students are a greater risk to become overweight or obese (Butler, Black, Blue, & Gretebeck, 2004; Gow et al., 2010). A meta-analysis of studies related to freshman weight gain found college students are at risk to gain weight faster than the national average, which further increases their risk of developing obesity and obesity related diseases (Vella-Zarb & Elgar, 2009).

Sexually transmitted diseases and substance abuse pose significant health risks to college students. Young adults have the highest rates of chronic viral sexually transmitted infections (STIs), such as human papilloma virus (HPV) and human immunodeficiency virus (HIV) of any age group (Collins et al., 2012). Up to 75% of all new cases of HPV occur in women ages 18-24, which is due in part to both misconceptions about modes of transmission and the low vaccination rate for HPV in the college population (Dunne et al., 2007; Sandfort & Pleasant, 2009). Although the majority of health centers (86%) have condom distribution programs, the number of condoms distributed to students by these programs may be insufficient to reduce either STIs or unintended pregnancies (Bulter, Procopia, Ragan, Funke, & Black, 2014).

Although nearly three-fourths of student health centers offer some testing for STIs, the overall number and type of testing may be inadequate (Butler, Black, & Coster, 2011). In addition, most centers do not offer rapid STI testing, which is important on college campuses (Butler, Black, & Avery, 2012). Lack of rapid STI testing may also contribute to the high rates of STIs in college students.

Substance abuse is also a major issue on college campuses. Three large-scale studies have shown that binge drinking, hazardous drinking, and heavy drinking are common among college students (Chiauzzi, Donovan, Black, Cooney, Buechner, & Wood, 2011; DeMartini & Carey,

2009; Morrell et al, 2012). In addition, college administrators identify smoking and marijuana use as areas of major concern on campus (Chiauzzi et al., 2011).

In addition to physical illnesses, mental health issues are also common for college students. Many students (1 in 4) enter college with a psychiatric diagnosis that requires psychotropic medications. Diagnoses such as depression, attention deficit disorder, or anxiety are common in college students (Sander, 2013). One-third of college students have at least one mental health issue, with approximately 15% of these students having a major or severe depressive episode during college (DeMartini & Carey, 2009; Yorgason et al., 2008). As they continue in college, their risk of psychological distress increases as does their use of tobacco and alcohol (Sander, 2013; Zulig, 2005).

### **Student Health Centers**

Little information was found in the literature about the operation of a student health clinic. Turner and Hurley (2002) provided an overview of college health clinics from the late 1800s to the year 2002. The authors discussed administrative and financial issues, accreditation and quality assurance as well as common services provided by student health clinics (Turner & Hurley, 2002). No research articles related to the effectiveness of college health centers were found in peer-reviewed journals.

The role of nurses in student health clinics has been chronicled by several authors. Nurses have been involved in college health centers since the late 1800s. The role of nurses has transitioned from working under the direction of physicians to being staffed and operated by nurses. Nurse practitioners are often the primary care providers in a large number of student health clinics (Crihfield & Grace, 2011; Mello, 2011; Turner & Hurley, 2002). This change from using physicians to the use of nurse practitioners as providers was also accompanied by a change

in the types of services being offered by clinics. In addition to providing emergency and short-term care, clinics began to offer wellness and health promotion services to address public health issues and to advocate for the health needs of students (Crihfield & Grace, 2011; Edington, 2012; Turner & Hurley, 2002). Nurses and nurse practitioners are primarily responsible for condoms distribution programs and sexual health information on campuses (Butler, Procopio, Ragan, Funke, & Black, 2014).

Today, the majority of student health clinics are staff by Advanced Practice Registered Nurses (APRN) (Mello, 2011). The use of APRNs to provide students with health services has many benefits. When compared to physicians rendering the same services, nurse practitioners have the same or higher patient satisfaction and deliver the same or better patient outcomes at a lower cost (Mello, 2011, Olson & Autio, 1999). Regardless of patient type and practice setting, APRNs have a long history of providing high quality care in a cost efficient manner (Horrocks, Anderson, & Salisbury, 2002; Safriet, 1992). Nurse practitioners also have better communication skills and provide more patient education and counselling than physicians (Horrocks et al, 2002; Newhouse et al., 2011).

Some colleges have formed partnerships between the college health center and the college's nursing program (Crihfield & Grace, 2012; Griffiths, 2005). Administratively, some health centers operate under the School or College of Nursing. On many of these campuses, nursing students and other health profession students, provide care to the clinic patients. These models have proven beneficial to both the students and the health center. Students gain valuable clinical experience while clinics are able to reduce operating expenses related to staffing (Crihfield & Grace, 2012, Griffiths, 2005).



Three articles provided insight in the development and operation of student health clinics (Edington, 2012; Hurley, Turner, & Floyd, 2000, Olson & Autio, 1999). Olson & Autio (1999) recommended using existing data on student populations to establish priority based health services. Edington (2012) and Olson and Autio (1999) recommended offering urgent and non-urgent care, and health promotion programs such as vaccinations and health screenings. Hurley, Turner, & Floyd (2000) discussed financial, logistic, and administrative concerns as they began a student health service on a rural campus.

Two articles were found that are similar to the Student Health Needs Assessment Survey of the project. Mello (2011) conducted a needs assessment survey for student health services on a small campus in rural North Dakota. Her study answered question similar to those proposed in this project. Her survey found a 78% of students desired a student health center and 74% expected to use the center during their academic career. The majority of students (65%) responded that having student nurses staff the clinic would not deter them from seeking care at the clinic (Mello, 2011). As part of the Healthy Campus/Community Initiative, researchers at Delta State University in Mississippi used a modified version of the ACHA-NCHA survey to assess students' health concerns (Griffin, Green, & Jefcoat, 2010). The survey provided information of student demographics, health issues, and health behavior. The university then utilized the results to modify and develop student health programs.

### **Benefits of a Student Health Center**

Student health centers in high schools have been proven to help overcome health disparities in adolescents (Gou, Wade, Pan & Keller, 2010). These centers have reduced barriers, such as transportation, lack of medical insurance, and a shortage of primary care providers, in this population. Additionally these programs have been effective in reducing emergency room

visits and promoting greater adherence to care (Gou et al, 2010). Woolard and Donahue (1995) found that student health centers provided primary care to students in an area where it would have otherwise been unavailable. If student health centers were not available, students would have had to travel approximately 50 miles or to utilize the emergency room for their primary care needs (Woolard & Donahue, 1995).

In addition, campus health services can play a key role in health promotion (Sander, 2013). The availability of programs that guide students to develop a healthier lifestyle can affect the health of students well beyond their time on campus. Since young adults are still forming personal health habits, positive behaviors learned during college can have a lifelong effect on a student's health (Gow et al., 2010). Even if comprehensive student health services are not available, services that encourage one healthy lifestyle change, such as the use of condoms, have been associated with increased healthy behaviors and improved communication between students and care providers (Butler, Ragan, Black; & Funke, 2014; Gow et al, 2010).

For the traditional student, college is often the first time they have managed their own health care independent of their parents. Student health centers offer a clearly identified resource for students as they learn to make decisions about health care (Mello, 2011; Olson & Autio, 1999). Health centers encourage students to collaborate with providers and become active partners in the management of their health problems (Wetzel, 2010).

Eisenberg et al. (2012) found that a convenient location and extended operating hours were important to students. Students from both two and four-year colleges reported convenience was an even greater concern than cost when seeking sexual health services (Eisenberg et al., 2012). A student health center can be even more critical on rural campuses (Woolard & Donahue, 1995). Due to transportation issues and a shortage of rural health care providers,

campus health clinics may be the only source of health care for students in these areas (Woolard & Donahue, 1995; Hurley, Turner, & Floyd, 2000).

For nursing, in an era where an increasing number of clinical experiences are based on simulation labs due to a lack of clinical sites, the use of a student health center to provide clinical experience is a creative option that includes a service learning experience. Student health centers allow the nursing students an opportunity to learn cultural sensitivity as they work with other students from different cultural backgrounds (Nauright & Wilson, 2012; Schwitzer, 2009). The opportunity to provide direct care also allows health profession students to develop their critical thinking and assessment skills in another type of clinical setting (Griffiths, 2005; Howard, Greenberg, Murray, & Sawyer, 2002).

### **Research Implications**

Several gaps in the literature about student health centers were noted. One of the major issues was the lack of current data concerning health promotion and preventative health services at college campuses. Most research focused on these areas was more than ten years old. The primary focus of current research has been on mental health and substance use issues of college students. The American College Health Association conducts a nationwide survey twice annually, which provides valuable information about the general health issues of students nationwide (ACHA, 2013a). This study provides in depth data on the lifestyle habits of college students (AHCA, 2013a). However, limited information is available about the physical health needs of college students (AHCA, 2013a). Despite the prevalence of obesity and chronic diseases on college campuses, little attention has been given to these health concerns.

A survey of student health clinics that included the types of services, program success and failures, and guidelines for serving this vulnerable population would benefit colleges who

are planning to implement or expand college health services. These data would be helpful in establishing evidence based programs for college health centers. Information on logistical and financial issues encountered by student health issues is also lacking in the literature.

Little research was done on the use of student nurses in college health centers. Since many schools are relying on simulation labs to provide clinical experience, using a student health center for clinical training seems to be another solution to the lack of clinical site. Research comparing the clinical knowledge gained by students in a simulation lab to that of a student health center would help demonstrate whether a health center on a college or public school campus would be an appropriate clinical site. In the few articles that discussed using student health centers for clinical training, no information was available about patient satisfaction. This data would be needed by program directors considering utilizing a health center for a clinical site.

### **Summary**

College students have both acute and chronic health needs similar to general population. However, they face numerous obstacles when trying to access care, such as lack of health insurance, lack of financial resources, shortage of primary care providers, and finances. Students often delay or do not seek care due to lack of resources.

College student health centers improve access to health care for students. Most college health programs offer acute health needs, sexual health services, mental health services, and programs focused on substance use and violence. Despite the prevalence of chronic diseases in college students, few services for prevention or treatment of chronic health issues are offered at student health centers.

Students who attend smaller colleges, especially those in rural areas, may not have any access to care while at school. While improving access to care for these students is needed, little information is available in the literature to provide guidance for smaller colleges interested in beginning student health services.

This translational project was conducted to assess the student health needs at DSC. Using a cross-sectional online survey, this project addressed three specific aims.

**Specific Aim I: Identify the common medical problems of students at Dalton State College.**

**Specific Aim II: Explore the relationship between the identified healthcare needs of students at Dalton State College and having a primary care provider.**

**Specific Aim III: Identify the need for a student health center at Dalton State College.**

## **Chapter II**

### **Theoretical Framework**

The purpose of utilizing a theoretical framework within a project is to aid in the development of the project from inception to completion (W.K. Kellogg Foundation, 2001). A theoretical framework gives the researcher a model to follow as he or she moves through the process of planning the project, implementing the project, and evaluating the outcomes of the project (W. K. Kellogg, Foundation, 2001).

#### **Built Framework for Nursing Research**

The Built Environment Framework for Nursing Research is a recent framework developed specifically to address health promotion in vulnerable populations (de Guzman & Kulbok, 2012). This framework is based on the precepts of urban planning which engages community leaders, business owners, and residents in the design of communities that meet the health and welfare needs of all the members of the community (“What is planning”, n.d.) This framework focuses on the built environment which is an urban planning concept that refers to any manmade change to the natural environment, such a buildings and roadways (Saleens & Handy, 2008). In addition to the built environment, this framework also includes principles from the Social Determinants of Health and Environmental Health Promotion Theory, which focuses on improving health outcomes by modifying the physical and social environment of the neighborhood, region, or nation (Schulz & Northridge, 2004). The Built Framework for Nursing Research also builds on some of Florence Nightingale’s writings about nursing and the client’s environment (de Guzman & Kulbok, 2012).

The built environment includes the physical aspects of the neighborhood, including layout, buildings, sidewalks, safety, and maintenance of the area (de Guzman & Kulbok, 2012).

The primary concept of the built environment is walkability. Walkability refers to the favorability of an area in promoting walking among residents, both for recreation and as a method of transportation (Leslie et al., 2007; Moudan et al., 2006). Areas that promote walkability have been shown to improve health outcomes (Saleens & Handy, 2008). Health behaviors, such as physical activity and diet, are seen as the link between the built environment and health outcomes (Schulz & Northridge, 2004).

The Built Environment Framework for Nursing Research proposes three constructs: regional-level influences, neighborhood-level influences, and individual-level influences. The framework considers the impact of these influences on the health outcome of both the community and the individual (Schulz & Northridge, 2004). The first construct, regional level influences, include the local government, the economy, and educational opportunities within the region. These factors are vital to obtaining the political support and funding to improve the built environment. Numerous studies link the health of the community to the accessibility of the needed services (de Guzman & Kulbok, 2012). Poor pregnancy outcomes have been linked to poor maintenance of the built environment (Miranda, Messer, & Kroeger, 2012). Outdoor walking paths have been found to decrease the risk of obesity and depression (Berke, Koepsell, Moudon, Hoskins, & Larson, 2007; Cosco, Moore, & Smith, 2014). See Figure 1.

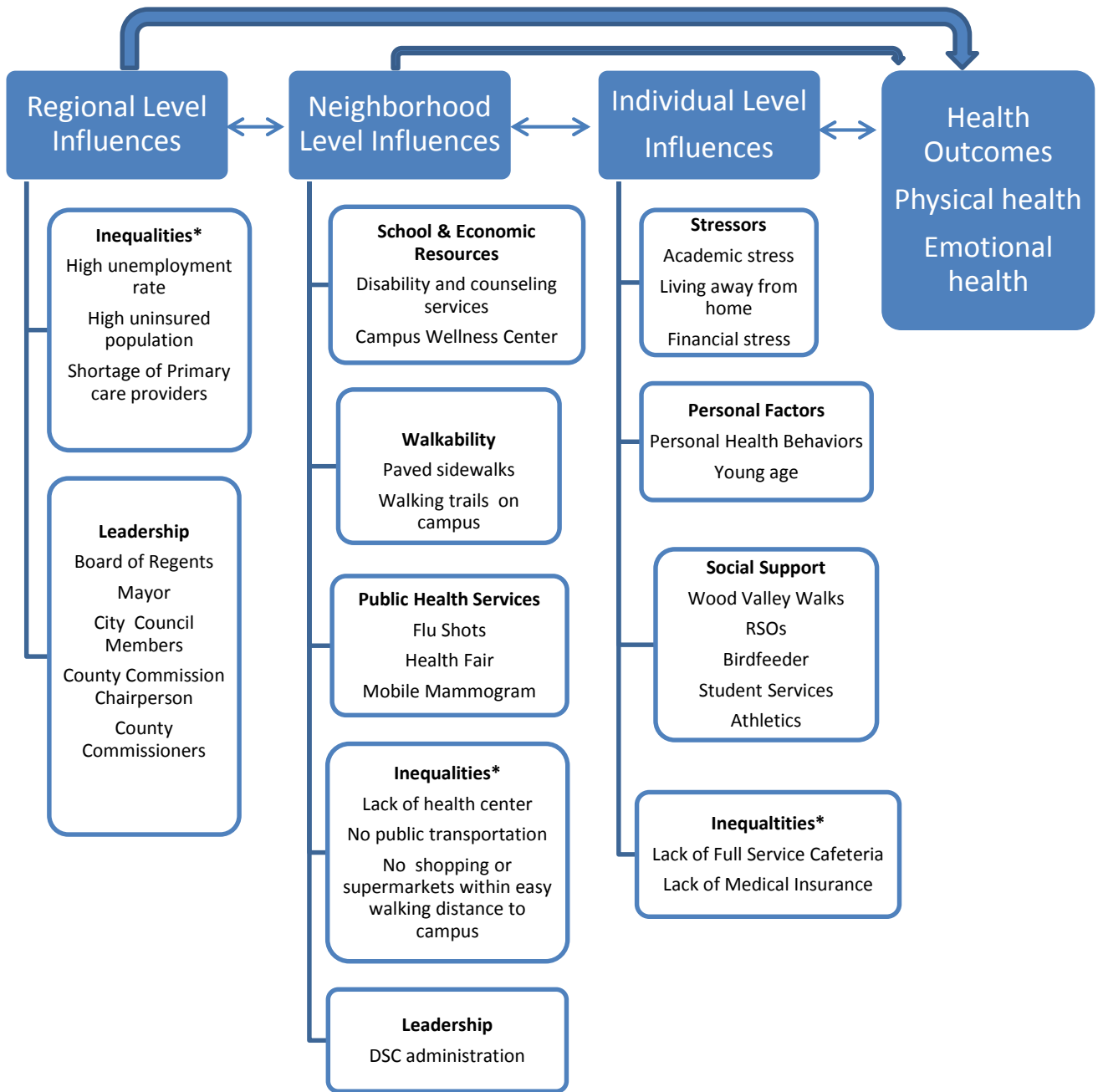


Figure 1. DSC Built Framework Model. Adapted from de Guzman & Kulbok (2012).

\* Social or economic disparities



**Regional-level influences.**

Dalton State College is one of two public, 4-year colleges in the 16-county Northwest Georgia Region (University System of Georgia, n.d.). The college is located in the heart of the textile industry in Whitfield County (Dalton-Whitfield Chamber of Commerce, n.d.). Whitfield County has a population of approximately 92,000 people. With a population of almost 28,000, Dalton is the second largest city in northwest Georgia (Dalton-Whitfield Chamber of Commerce, n.d.). Dalton and Whitfield County maintain separate governing bodies. The government of Dalton consists of a mayor and four city council members while Whitfield County has a 5 person county commission and a county administrator (Dalton-Whitfield Chamber of Commerce, n.d.).

It is important to note some issues particular to the region that increase the vulnerability of the students at DSC. First, the area has been hard hit by the recent economic downturn. In July, the national unemployment rate was 6.6%, and the Georgia unemployment rate was 8.3% while the unemployment rate in Whitfield County was over 12% (Georgia Department of Labor [GDOL], 2013). Since approximately one-half of the student body lives in this area, many are without health insurance due to the unemployment of their parents or themselves. The Student Health Needs Survey will assess the insurance status of students at DSC.

**Neighborhood-level influences.**

Neighborhood level influences include economic resources, social cohesion and trust, and education level of the community. Economic resources can be divided into property and human resources, which include land, manmade resources such as building and roads, and labor used to convert natural resources into manmade resources (Conrad, 1999; "Economic Resources", n.d.).

Social cohesion and trust is the degree to which the community is connected and working to similar goals (Casas, 2012). In this model, the neighborhood is defined as the area surrounding resident's homes where their daily activities occur (Moudan et al., 2006).

Recently, the director of campus housing has started two campaigns on campus for students. The first is the opening of the "The Birdfeeder". The Birdfeeder is a food pantry which was started as a method to assist students in residential housing that were without food. Faculty and staff stock the food pantry for these students. The second, Wood Valley Walks, is a walking club which meets weekly at the campus housing office for a walk around the campus. While this club was designed specifically to encourage a sense of community and increase physical activity among the students living in residence housing, it is open to anyone on campus. In March 2014, Roadrunner Run Around, a 5K race and fun walk, was held on campus. This was the inaugural race and was sponsored by faculty on campus to promote health and wellness.

Since DSC has primarily been a commuter school, supermarkets and shopping centers are not located close to campus. While improvements in food services have occurred recently, the hours and type of food available still remain limited, especially during weekends and holidays. Public transportation is not available in Dalton or the surrounding counties. Whitfield County is served by one regional referral hospital, Hamilton Medical Center. Hamilton Medical Center is a 282 bed, non-profit hospital operated by Hamilton Healthcare System (HHS) (Hamilton Healthcare System, n.d.). HHS also operates three walk-in clinics in the area, two in Whitfield County and one in an adjacent county. Hamilton Healthcare and Hamilton Convenient Care are located approximately 10 minutes by car from campus. Varnell and Murray Mountain Healthcare are approximately 30 minutes from campus. Gordon Hospital is a 69 bed community hospital

located 30 minutes by car from campus (Gordon Hospital, n.d.). Gordon Hospital Systems also operates two walk-in clinics in neighboring Gordon and Murray Counties.

**Individual-level influences.**

Individual-level influences include the personal health behaviors of the residents. These include their physical activity levels, dietary practices, and other health promoting behaviors (de Guzman & Kulbok, 2012). Preventative services, whether primary, secondary, or tertiary, are included in the individual level influences according to the model.

DSC campus wellness and recreation offers various nutrition and exercise classes but these have historically been poorly attended. New hiking trails and sidewalks are available on campus but are underutilized. Each fall influenza vaccines are offered free of charge on campus by the Office of Student Life for students and staff. Mobile mammograms for both staff and students are offered on campus each October. Counselling services are currently available to students through student services. The Student Health Assessment survey sought to determine the type of health services students' desire on campus and will be an initial step toward opening a student health center.

Since the purpose of this translational research project was to conduct the Student Health Assessment Survey and use the data obtained to formulate a plan for developing a student health center, it only assessed individual level of the Built Framework. Survey results will be then be used to broaden support for the health center at the neighborhood and regional level and to begin initial development of the center. At the neighborhood level, administrative support will be needed to provide the physical space for the clinic, to establish health promotion as a priority on campus, and provide interim financing for the clinic. At the regional level community support will be needed to establish a referral network and identify a medical director.

### **Summary**

The Built Framework provided a structured model for the development of a student health center. The framework was a guide for the assessment of regional, neighborhood, and individual factors that affected the health of the college students. The high unemployment rate in the region left many students without access to group medical insurance through either their employer or their parent's employer. The assessment of neighborhood resources identified several issues which impact health. First, a cafeteria with extended operating hours and menu options was not available. Shopping centers and supermarkets are not is walking distance of the campus and since public transportation was not available, students did not have easy access to fresh foods. The Built Framework for Nursing Research provided a template for the development of the DSC Student Health Needs Survey which assessed both physical and emotional health needs on campus. Using the three levels of influence, the researcher was able to perform a complete assessment of the student health needs and the resources available to students in the neighborhood and community. The guidance offered by the framework helped the researcher recognized the steps needed to accomplish the goal of opening a student health center on campus. Additionally, it provided direction for the long-term goal of improving the health outcomes of the student population.

## **Chapter III**

### **Methodology**

This section summarizes the methodology used in this descriptive, cross-sectional survey used to determine the health needs of students and the student response to a proposed health center at DSC.

#### **Subjects and Recruitment**

All students enrolled during spring, summer, and/or fall semesters of 2014 at DSC were included in the study recruitment.

**Inclusion and Exclusion Criteria.** All students 18 and over who completed the online survey were included in the survey. Since students under the age of 18 could not give consent to participate in the study, they were excluded from this translational project.

#### **Setting**

The setting for this translational project is Dalton State College in Dalton, Georgia. The translational project was conducted at the request of the Vice President of Student and Enrollment Services of DSC and had the support of the President of the College, the Vice President of Academic Services, the Academic Dean of the School of Health Professions and the Student Government Association.

#### **Sample Size**

In order to achieve a power of .80 and an alpha of .05, a sample size of 600 was needed for this project (Kellar & Kelvin, 2013). 811 surveys were completed. However, 75 surveys were excluded due to lack of consent. The final sample size was 736 students.

## **Instruments**

Students were asked to complete the DSC Student Health Assessment Survey (see Appendix 1). Since this tool was developed specifically for use in this project, a pilot survey of 10 college students from other colleges was conducted in April 2014 to test for validity and ease of use (Grove, Burns, & Gray, 2013). No changes in the instrument were required based on the pilot survey.

The DSC Student Health Survey collected demographic data on the participants. Variables included were general health, gender, age, year in school, enrollment status, marital status, race/ethnicity, and housing. Housing status was measured by campus housing, living with parents or spouse, or living off campus with non-related person(s). Primary source of health insurance was measured as covered on parent, spouse, or personal plan, covered on government plan, or do not have health insurance.

Data on general health, height, and weight were also collected. Students were asked to self-report their height and weight. These data were then used to calculate student's body mass index (BMI) following World Health Organization Guidelines (World Health Association [WHO], 2014). Overall health was measured on a Likert scale (1 = excellent to 5 = poor) (Bond & Fox, 2001). Past medical history was assessed by asking students to respond yes or no if they had previously been diagnosed with the following diseases: allergies, asthma, bronchitis, any type of cancer, chlamydia/gonorrhea/ herpes/genital warts/ HPV, diabetes, hepatitis B or C, HIV, high blood pressure, high cholesterol, irritable bowel syndrome/Crohn's disease, migraine headache, or tuberculosis. Students were asked if they had been treated by a health professional in the past 18 months for any of the diseases listed above as well as influenza, ear or sinus infection, strep throat, or broken bone, strains, or sprains. Site of visit was measured as primary care office,

walk-in clinic, or emergency room. Table two provides examples of the reporting tables for these data. Primary care visits were measured as having been seen by personal primary care provider or office within past 18 months. A decision was made by the researcher to extend the time frame for primary care visits to 18 months since students did not have easy access to medical care at the college and might wait until school breaks to seek medical care and extended the time frame for acute care visits to 18 months.

Table 2

*General Health Data Table*

Have you ever been diagnosed with any of the following medical conditions?

Disease/Condition	Yes	No
Allergies		
Asthma		
Bronchitis		
Cancer		
Chlamydia/Gonorrhea/Genital		
Warts, HPV		
Diabetes		
Hepatitis B or C		
HIV		
High blood pressure		
High cholesterol		
Irritable bowel syndrome/ Crohn's disease		
Migraine Headache		
Tuberculosis		

Additional questions were added to the survey regarding the need for an on-campus health center and the likelihood of the student using the health center. These questions were adapted from a previous study assessing the interest in a student health center on a similar campus (Mello, 2011). Measurements for the questions were based on responses on a five level Likert item scale (1 = *strong agreement* to 5 = *strong disagreement*) (Bond & Fox, 2001).

### **The Intervention and Data Collection**

Approval for the survey was obtained from the institutional review boards at both DSC and Georgia College and State University. Students were recruited through a variety of methods. The primary method was through campus email. In addition to an initial recruitment email from the president of the college, weekly email reminders were sent during the nine weeks of the study. Explanation of the purpose of the survey and an electronic informed consent was included within the survey. Information about the project was published on the DSC student life webpage, campus bulletin boards, and the StallWall. The primary researcher also recruited students at Summer Orientation and Summer Bridge Sessions. Faculty teaching courses during summer semester also received an email explaining the survey and the purpose of the translational project to solicit their support with recruitment. Additionally, some professors allowed the PI to discuss the project to their class. The Director of Student Housing and the Athletics Department were contacted by the primary researcher to elicit their support for the translational project.

A link to the DSC Student Health Assessment Survey was sent to all students through DSC email. Students could access the survey in SurveyMonkey™ through the link provided in the email or the DSC Facebook page or other recruitment materials. No student names or individual identifying information were collected while the student electronically accesses the Student Health Assessment Survey. Students who completed the survey were given the option to



sign up for a drawing for ten \$25 DSC bookstore gift cards. Students who desired to register for the gift cards ( $n= 240$  students) were redirected to a separate website that was not associated with the individual student's survey results. The student could then self-disclose their name and contact information for the drawing. All survey results have been reported as aggregate data and are not associated with individual student information.

### **Data Analysis Plan**

Statistical analysis was conducted using Statistical Packages for the Social Sciences (SPSS) for Windows, version 21.0. Data analysis began with an examination of missing data. All data associated with participants who did not provide consents were removed and stored in a separate file in SPSS. Standard data cleaning was then performed. Frequencies were performed on all variables. Normality testing was completed on all interval/ratio data. Descriptive statistics were used to describe the nominal and ordinal data. Prior to addressing each research question, statistical assumptions for all statistical tests were examined.

### **Analysis Plan for Research Questions**

**Clinical question 1:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, what were the most common chronic health needs of students?

**Clinical question 2:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, what were the most common acute health needs of students?

Approach: To explore these two research questions, descriptive data were calculated for all chronic and acute health needs reported by students on the DSC Student Health Needs Survey.

**Clinical question 3:** Based on the data from the online survey of students enrolled in DSC during Summer 2014, what were the students medical needs related to drugs and alcohol use?

Approach: To explore this research questions, chi-square analysis was conducted for the drug and alcohol variable, comparing to the medical needs and primary care visits variables.

**Clinical question 4:** Based on the data from the online survey of students enrolled in DSC during Summer 2014, were there any demographic and socioeconomic factors that correlated with more acute health needs of students?

**Clinical question 5:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, were there any demographic or socioeconomic factors that correlated with more chronic health needs of students?

Approach: For these questions, the number of acute and chronic health needs reported by students was counted to create the variable, more. To explore these two research questions, means and standard deviations were calculated initially for interval/ratio data. Spearman's rho was used to complete the correlational analyses for the variables of age, height, weight, BMI, and overall health. Independent t-tests were conducted to determine differences based on gender. Post-hoc testing with Mann-Whitney U test was performed. For ordinal data, Kruskal Wallis testing was done to determine the differences in rankings among groups. If the Kruskal Wallis testing demonstrated statistical significance, post hoc testing was done using Mann-Whitney U testing.

**Clinical question 6:** Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and went regularly to see the primary healthcare provider, have fewer chronic health needs or concerns

than students who that do not have a primary healthcare provider or have not seen a provider within the past 18 months?

Approach: For ordinal data, Kruskal Wallis testing was done to determine the differences in rankings among groups. If the Kruskal Wallis testing demonstrated statistical significance, post hoc testing was done using Mann-Whitney U testing.

**Clinical question 7:** Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and go regularly to see the primary healthcare provider, have fewer acute health needs or concerns than students who that did not have a primary healthcare provider or have not seen a provider within the past 18 months?

Approach: The number of acute and chronic health needs reported by students was counted to determine fewer health visits. For ordinal data, Kruskal Wallis testing was done to determine the differences in rankings among groups. If the Kruskal Wallis testing demonstrated statistical significance, post hoc testing was done using Mann-Whitney U testing.

**Clinical question 8:** Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identify their primary healthcare provider and go regularly to see the primary healthcare provider, have fewer health needs or concerns related to drug and alcohol use than students who that did not have a primary healthcare provider or have not seen a provider within the past 18 months?

Approach: The number of acute and chronic health needs reported by students was counted to determine fewer health visits. For ordinal data, Kruskal Wallis testing was done to determine the differences in rankings among groups. If the Kruskal Wallis testing demonstrated statistical significance, post hoc testing was done using Mann-Whitney U testing.

**Clinical question 9:** Based on the data from the online survey of students enrolled in DSC during the summer of 2014, were there any demographic or socioeconomic factors that correlated with students easily identifying and regularly seeing their health care provider within the past 18 months?

Approach: To examine this research question, Kruskal Wallis testing was done to determine the differences in rankings among groups. If the Kruskal Wallis testing demonstrated statistical significance, post hoc testing was done using Mann-Whitney U testing.

**Clinical question 10:** Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what percentage of students felt a student health center was needed?

Approach: To examine this research question, descriptive statistics were calculated to determine student interest in the health center.

**Clinical question 11:** Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what percentage of students would likely use a student health center?

Approach: To examine this research question, descriptive statistics including means and standard deviations were conducted on this data. Because initial testing indicated the variables age, height, weight, BMI, and likely to use the health were not-normally distributed, Spearman's rho analyses were conducted on all interval/ratio data. For ordinal data, Kruskal Wallis analyses were done to determine the differences in rankings among groups. If the Kruskal Wallis analyses demonstrated statistical significance, post hoc testing was done using Mann-Whitney U analyses.

**Clinical question 12:** Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what services would students want to have available in a student health center?

Approach: To examine this research questions, descriptive statistics were calculated.

**Clinical question 13:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, were there any demographic or socioeconomic factors that correlated with students' intent to use a student health center?

Approach: To examine this research question, descriptive statistics including means and standard deviations were conducted on this data. Spearman's rho was conducted on non-normally distributed interval/ratio data. For ordinal data, Kruskal Wallis analyses were done to determine the differences in rankings among groups. If the Kruskal Wallis analyses demonstrated statistical significance, post hoc testing was done using Mann-Whitney U analyses.

### **Summary**

This section presented the data analysis plan for each research question. All data analyses were conducted using SPSS, version 21.0. Frequencies were determined for all data. Correlational analyses were performed on all interval/ratio data. Kruskal Wallis analyses were performed on all nominal and ordinal data. Post-hoc testing with Mann-Whitney U analyses were conducted on all statistically significant.

## Chapter IV

### Results

The results of this descriptive, cross-sectional survey used to determine the health needs of students and the student response to a proposed health center at DSC are discussed in this section. Descriptive information regarding the student population and data addressing the research questions are reported in this section.

Initially, the data was screened for missing responses and consent. All data from students who did not provided an electronic consent were removed prior to conducting the statistical analysis. The remaining data were coded to allow for statistical analysis.

Frequencies including mean, median, and standard deviations were calculated on data. All Interval/Ratio data were then analyzed to determine distribution patterns. These results are reported below.

The variable, overall health, was measured using a Likert scale of 1 = excellent to use to 5 = poor. This variable was found to have a near normal distribution ( $M = 2.5$ ,  $SD = .9$ , median = 2.5, mode = 2.0). Fisher's measure of skewness was 3.51 and Fisher's measure of kurtosis was -.64. Age in years was found to be not normally distributed in this sample ( $M = 26.43$ ,  $SD = 9.3$ , median = 22.5, mode = 20). Fisher's measure of skewness was 16.11 and Fisher's measure of kurtosis was 2.67. These data were highly skewed to the left or younger ages, which would be expected in a college population. Height in inches was found to have a not normal distribution with data highly skewed to the left ( $M = 65.9$ ,  $SD = 3.9$ , median = 65.0, mode = 63). Fisher's measure of skewness was 6.65 and Fisher's measure of kurtosis was 1.41. Weight in pounds was not normally distributed in this population ( $M = 170$ ,  $SD = 51.4$ , median = 159.50, mode = 150). Fisher's measure of skewness was 10.93 and Fisher's measure of kurtosis

was 2.25. BMI was found to have a not normal distribution with ( $M = 27.5$ ,  $SD = 7.52$ , median = 25.7, mode = 20.1). These data were highly skewed to the right. Fisher's measure of skewness was 11.68 and Fisher's measure of kurtosis was 2.53. These data are reported in Table 4.

Data related to how likely a student would use the health center was not normally distributed in this sample. These data was measured using a Likert scale (1 = extremely likely to use to 4 = never use). Fisher's measure of skewness was 7.44 and Fisher's measure of kurtosis was 1.86. The histogram revealed the data was highly skewed to the left with the majority of students being either extremely like or likely to use the health center ( $M = 1.97$ ,  $SD = .98$ , median = 2.0, mode = 1.0). The number of times students were likely to use a health center was measured using a scale of none, 1-2 times per semester or 3 or more times a semester. These data were found to have a normal distribution with the majority of students (68%) estimating they would use the health center one to two times a semester ( $M = 1.96$ ,  $SD = .56$ , median = 2.0, mode = 1.0). The histogram revealed a normal distribution. Fisher's measure of skewness was -.11 and Fisher's measure of kurtosis was .93.

### **Sample Characteristics**

The final sample consisted of 736 students with a current DSC email address in Summer 2014. This sample represents approximately 17.5% ( $N = 5015$ ) of the total student population enrolled during academic year 2013-14 and 49.8% ( $N = 1626$ ) of students enrolled in Summer 2014.

The study participants, as shown in Table 4, were primarily female (77.7%,  $n = 162$ ) which is higher than the female percentage (61%) of the total student population at DSC. The average age was 26.5 years. The majority of the students identified themselves as Caucasian (74.5%,  $n = 540$ ) and Hispanic (16.1%,  $n = 116$ ). The percentage of Caucasian students in the

total student population at DSC in academic year 2014 - 2015 was 67%. The percentage of Hispanic students in the total student population at DSC was 19% during academic year 2014 - 2015.

Almost three-fourths were enrolled full time (72%,  $n = 525$ ) which is similar to the full time enrollment of the total student population (74%) at DSC during academic 2013-2014. Two-thirds worked either full or part time (68.3%,  $n = 512$ ) while enrolled in school. Approximately two-thirds of students (67.1%,  $n = 491$ ) were single. Data on these demographics has not been reported for the total student population. Almost one-half of the students (41%,  $n = 307$ ) who completed the survey reported a major in the School of Health Professions. The School of Health Professions is the largest school on campus with approximately 30% of students enrolled in academic year 2013-2014 enrolled in health professions majors. The demographic variables are presented in Table 3.

Table 3

*Demographic Characteristics*

Variables	<i>N</i>	%	<i>M (SD)</i>	Range
Overall Health	736		2.5 (.90)	1-5
1=excellent	92	12.5%		
2=very good	289	39.3%		
3=good	265	36.0%		
4=fair	75	10.2%		
5=poor	15	2.0%		
Age	736		26.48 (9.32)	18-60 yrs.
Height	719		65.88 (3.90)	56-82 in.
Weight	716		170.18 (51.40)	83-370 lbs.
BMI	716		27.52 (7.52)	14.9-57.9

Table 3 continues



Gender	736	
Male	162	22.3%
Female	564	77.7%
Ethnicity	736	
White/Caucasian	540	74.2%
Hispanic/ Latino/a	117	16.1%
Black/African American	39	5.4%
Asian	21	2.9%
Other	11	1.5%
Marital Status	732	
Single	491	67.1%
Married	204	27.9%
Separated	1	0.1%
Divorced	36	4.9%
Year in School	736	
Freshman	140	19.0%
Sophomore	222	30.2%
Junior	196	26.6%
Senior	178	24.2%
Enrollment Status	729	
Full time	525	72.0%
Part time	204	28.0%
Housing	731	
Lives/Campus housing	44	6.0%
Lives W/Parent/Spouse	521	70.8%
Lives W/Non-relative	43	5.8%
Lives Alone	7	7.5%
Lives Alone W/ children	65	8.8%
Currently has no home	3	0.4%
Insurance	730	
Own policy	138	18.9%
Parent's plan	297	40.7%
Spouse's plan	61	8.4%
Gov't plan	49	6.7%
None	185	25.3%
Work	735	
>32 hours	198	26.9%
<32 >20 hrs.	160	21.8%
<20 hrs.	144	19.6%
Summer only	27	5.0%
None	196	26.7%

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Table 3 continues

Financial Aid	736	
Yes	650	88.3%
No	86	11.7%
Academic Major	731	
Business	106	14.5
Communication	13	1.8
Education	58	7.9
English	18	2.5
General studies	11	1.5
Health professions	307	41.7
Math	10	1.3
Natural sciences	91	12.3
Social sciences	73	9.9
Technology	22	3.0
Other	20	2.7

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### Results for Clinical Question 1

**Clinical question 1:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, what were the most common chronic health needs of students? Descriptive statistics were used to analyze this clinical question. The number of reported chronic health needs was summed for each participant. The number of chronic medical conditions was found to have a not normal distribution in this population ( $M = 1.53$ ,  $SD = 1.69$ , median = 1.0, mode = 0). Fisher's measure of skewness was 16.13 and Fisher's measure of kurtosis was 3.73. Approximately two-thirds (65.2%,  $n = 480$ ) of students reported at least one chronic medical condition while 91 students (12.4%,  $n = 91$ ) reported four or more medical conditions. The frequency data for the number of diagnosed medical conditions and the most common chronic health needs are reported in Table 4.

Table 4

*Number of Chronic Health Needs & Most Common Health Needs*

<i># of Health Needs</i>	<i>N</i>	<i>%</i>
None	256	34.8%
One	181	24.6%
Two	132	17.9%
Three	76	10.3%
Four or more	91	12.4%
<i>Most Common Needs</i>		
Allergies	295	40.0%
Anxiety	136	18.5%
Hypertension/High Cholesterol	120	17.3%
Depression	115	15.6%
Asthma	112	15.2%
Migraines	107	14.5%

**Results for Clinical Question 2**

Clinical question 2: Based on the data from the online survey of students enrolled in DSC during the Summer 2014, what were the most common acute health needs of students?

Descriptive statistics were used to analyze this clinical question. The number of acute health needs was summed for each participant. These data were found to have a not normal distribution ( $M = 1.45$ ,  $SD = 1.69$ , median = 1.45, mode = 0). Fisher's measure of skewness was 18.43 and Fisher's measure of kurtosis was 4.80. Almost two-thirds of students ( $n = 464$ ) were treated for a least one acute medical condition during the past 18 months. The frequency data for the number of diagnosed acute health needs and most common acute health needs are reported in Table 5.

Table 5

*Number of Acute Health Needs & Most Common Acute Health Needs*

# of Health Needs	<i>N</i>	%
None	272	37.0%
One	196	26.6%
Two	109	14.8%
Three	75	10.2%
Four or More	84	7.1%
<i>Most Common Acute Needs</i>		
Allergies	177	24.0%
Family Planning	172	23.4%
Sinus/Ear Infection	170	23.1%
Anxiety	79	10.7%
Strep Throat	68	9.2%
Hypertension/High Cholesterol	68	9.2%
Depression	64	8.7%

**Results for Clinical Question 3**

Clinical question 3: Based on the data from the online survey of students enrolled in DSC during Summer 2014, what were the medical needs related to drugs and alcohol use? Chi-square analyses were conducted for each drug and alcohol variable with relationship to reported medical needs. At DSC, 12% of students ( $n = 91$ ) reported drinking behavior at risk for alcohol abuse (5 or more drinks per day or 14 or more drinks per week for males or 4 or more drinks per day or 7 or more drinks per week for females) (National Institute of Alcoholism and Alcohol Abuse [NIAAA], 2013). This level of alcohol use was not associated with any increase in acute or chronic health needs. Several variables (used meth, used cocaine, and used other illegal drugs) had no responses. A significant association between using someone else's prescription and recent acute medical needs was found. Students who reported using someone else's prescriptions

( $n = 12$ ) were significantly more likely to have had recent acute medical needs ( $X^2 = 6.05$ ,  $n = 12$ ,  $p = .048$ ).

#### **Results for Clinical Question 4**

Clinical question 4: Based on the data from the online survey of students enrolled in DSC during Summer 2014, were there any demographic and socioeconomic factors that correlated with more acute health needs of students? Correlational analyses were used to test the relationship between the number of acute health needs and the interval/ratio demographic variables (age, overall health, and BMI). Because initial data screening indicated that age and overall health rating were not normally distributed, Spearman's rho two-tailed testing was performed. With respect to the variable age, there were no correlations with acute health needs ( $r_s = .07$ ,  $p > .05$ ). The data showed a significant positive correlation between overall health and acute health needs. Students who reported their overall health as good or better reported fewer acute health needs ( $r_s = .19$ ,  $p < .001$ ). The data demonstrated a positive correlation between BMI and overall health. As BMI increased, students reported poorer overall health ( $r_s = .32$ ,  $p < .001$ ).

Mann-Whitney U analysis was performed to determine the differences between male and female students with relation to chronic health needs. Women (*mean rank* = 389.73) were statistically more likely than men (*mean rank* = 273.02) to report acute health needs ( $U = 31026.5$ ,  $p < .001$ ). Kruskal Wallis analyses were performed to test the remaining demographic variables measured at the ordinal level. Statistically significant results are reported in Table 6.

Table 6

*Demographic Variables and Acute Health Needs*

Variable	Chi-Square	Demographic	Mean Rank	Mean (SD)
Race	41.43*	White/Caucasian	384.74	1.69 (1.76)
		Black/African American	349.27	1.33 (1.43)
		Hispanic/Latino/a	295.21	.95 (1.20)
		Asian	263.17	.76 (0.16)
Marital Status	10.27**	Single	333.68	1.29 (1.39)
		Married	382.47	1.96 (2.07)
Insurance Type	12.31***	None	331.85	1.22 (1.55)
		Parent plan	362.32	1.35 (1.48)
		Own	391.76	1.77 (2.08)
		Spouse	422.71	1.95 (1.87)

\* $p < .001$       \*\* $p < .01$       \*\*\* $p < .05$

Post hoc comparison of groups with Mann-Whitney U was performed on all statistically significant variables. Caucasian students were statistically more likely to report acute health needs than Black/African-American ( $U = 8393, p < .01$ ), Hispanic ( $U = 21658, p < .001$ ), or Asian students ( $U = 3416.5, p < .001$ ). Post hoc comparison of groups with Mann-Whitney U found single students were significantly less likely to report acute health needs than married students ( $U = 43051, p < .01$ ). Post hoc comparison of groups with Mann-Whitney U found students with no medical insurance were statistically less likely to report acute health needs than students who had their own insurance policy ( $U = 10721, p < .01$ ) or students covered on a spouse's policy ( $U = 4271, p < .01$ ). Students covered on a parent's policy were statistically less likely to report acute health needs than students covered on a spouse's policy ( $U = 7405, p < .05$ ).

**Clinical question 5:** Based on the data from the online survey of students enrolled in DSC during the Summer 2014, were there any demographic or socioeconomic factors that correlated with more chronic health needs of students? Correlational analyses were used to test the relationship between the number of chronic health needs and the interval/ratio demographic

variables (age, overall health, and BMI). Because initial data screening indicated that age and overall health frequency were not normally distributed, Spearman's rho two-tailed analysis was performed. The data demonstrated a significant positive correlation between age and chronic health needs. As age increased, students reported more chronic medical conditions ( $r_s = .17, p < .001$ ). The data also showed a significant negative correlation between overall health and chronic health needs. Students who rated their overall health as good or better reported fewer chronic health needs ( $r_s = .28, p < .001$ ). The data showed a statistically significant positive correlation between BMI and chronic health needs ( $r_s = .20, p < .001$ ). Students with higher BMI scores reported more chronic health needs.

Mann-Whitney U analysis was performed to determine the differences between male and female students related to acute health needs. Female students (*mean rank* = 374.31) were statistically more likely to report chronic health needs than male students (*mean rank* = 345.86) ( $U = 39587, p < .01$ ).

Kruskal Wallis analyses were performed to test the demographic variables measured at the ordinal level. Only the variables that demonstrated statistically significant results are reported. The results are reported in Table 7.

Table 7

*Demographic Variables and Chronic Health Needs*

Variable	Chi-Square	Demographic	Mean Rank	Mean (SD)
Race	24.38*	White/Caucasian	384.74	1.68 (1.76)
		Hispanic/Latino/a	295.21	.95 (1.20)
		Asian	263.17	.76 (1.13)
Marital Status	16.01*	Single	352.70	1.29 (1.39)
		Married	403.70	1.95 (2.07)
		Divorced	339.60	2.31 (2.21)
Residence	16.67**	Live with parents or spouse	350.86	1.41 (1.51)
			431.81	1.91 (1.77)
		Live alone with children	431.81	2.20 (2.12)
		Live alone		
Insurance	18.66*	Parent plan	331.03	1.16 (1.21)
		None	372.27	1.66 (1.87)
		Own plan	385.05	1.88 (2.17)
		Government	416.13	1.80 (1.49)
		Spouse	427.88	2.00 (1.72)
Work	18.07*	Summer only	318.57	1.13 (1.40)
		Part time (<20 hrs. /wk.)	333.74	1.23 (1.48)
		Part time (>20 <32 hrs. /wk.)	340.11	1.25 (1.36)
			384.33	1.75 (1.92)
		Full time (32+ hrs. /wk.)	408.78	1.82 (1.75)
Financial Aid	12.2**	Ga. Hope	296.11	1.24 (1.52)
		Pell Grant	336.45	1.58 (1.69)
		Student Loan	363.98	1.89 (1.81)

\* $p < .01$ \*\* $p < .05$ 

Post hoc comparison for statistically significant variables was conducted using Mann-Whitney U. Single students were significantly less likely to have chronic health needs than married students ( $U = 43051, p < .01$ ). Divorced students were significantly less likely to have chronic health needs than single students ( $U = 6611, p < .01$ ). Caucasian students were



statistically more likely to report chronic health needs than Hispanic ( $U = 21658, p < .001$ ) or Asian students ( $U = 3416.5, p < .01$ ). Post hoc comparison of groups with Mann-Whitney U found that students who live alone are statistically more likely than students who live with parents or a spouse to report chronic health needs ( $U = 11213.5, p < .01$ ). Students who live alone with children are also statistically more likely to report chronic health needs than those who live with parents or a spouse ( $U = 13894.5, p < .05$ ). Post hoc comparison with Mann-Whitney U found that students covered on a parents plan were statistically less likely to report chronic medical conditions than those with their own insurance plan ( $U = 17574., p < .05$ ), covered on a spouse's plan ( $U = 6576.5, p < .001$ ), covered with government insurance ( $U = 05441.5, p < .01$ ) or those students with no insurance ( $U = 24472, p < .01$ ).

Student who work less than 32 hours per week were statistically more likely than students who work more than 20 but less than 32 hours per week ( $U = 13980.5, p < .05$ ) or less than 20 hours per week ( $U = 12345.5, p < .05$ ) to report chronic medical conditions. Students did not work at all were statistically more likely to report chronic medical conditions than those who work more than 20 but less than 32 hours per week ( $U = 12672.5, p < .01$ ), than students who work less than 20 hours per week ( $U = 11194.5, p < .01$ ) or student who work at summers only ( $U = 2720.5, p < .05$ ). Kruskal Wallis Testing demonstrated a statistically significant relationship between financial aid and chronic health needs ( $X^2 = 12.2, p < .05$ ). Students who received Georgia Hope Scholarships were statistically less likely to report chronic health needs than students who received student loans ( $U = 7294, p < .01$ ) or students who received Pell Grants ( $U = 25308.5, p < .05$ ).

**Results for Clinical Question 6**

Clinical question 6: Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider (PCP) and went regularly to see the primary healthcare provider, have fewer chronic health needs or concerns than students who do not have a primary healthcare provider or have not seen a provider within the past 18 months? Since this data was measure at the ordinal level, Kruskal Wallis analysis was performed to determine if students who had a primary care provider have fewer chronic health needs than those who did not have a PCP or who had not seen their PCP in the past 18 months. The results indicated a statistically significant relationship between having chronic health needs and being seen a PCP recently (*mean rank* = 385.43), having a PCP but not seeing the PCP within 18 months (*mean rank* = 306.23) or not having a PCP (*mean rank* = 336.82) ( $X^2 = 15.45, p < .001$ ). Post hoc testing with Mann-Whitney U demonstrated that students who had seen their PCP in the previous 18 months had more chronic health needs than students who had not seen their PCP in the previous 18 months (*mean rank* = 198.70) ( $U = 13006, p < .01$ ). Students who had seen their PCP within the previous 18 months also had more chronic health needs that those students without a PCP ( $U = 340824, p < .01$ ).

**Results for Clinical Question 7**

Clinical question 7: Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and go regularly to see the primary healthcare provider, have fewer acute health needs or concerns than students who did not have a primary healthcare provider or have not seen a provider within the past 18 months? Kruskal Wallis analyses found a statistically significant relationship between regular PCP visits and acute health needs ( $X^2 = 64.06, p < .001$ ). Students who had regular PCP

visits had more acute health needs (*mean rank* = 413.01) than students who had a PCP but had not seen them in more than 18 months (*mean rank* = 273.45) or those who have no PCP (*mean rank* = 300.43). Post hoc comparison of groups with Mann-Whitney U demonstrated that students who had seen their PCP in the previous 18 months had statistically significantly more acute health needs than students who had not seen their PCP in the previous 18 months ( $U = 10290, p < .001$ ). Student who had recently seen their PCP also had statistically significantly more acute health needs than students who did not have a PCP ( $U = 32423, p < .05$ ).

### **Results for Clinical question 8**

Clinical question 8: Based on the data from the online survey of students enrolled in the Summer 2014, did students who easily identified their primary healthcare provider and go regularly to see the primary healthcare provider, have fewer health needs or concerns related to drug and alcohol use than students who did not have a primary healthcare provider or have not seen a provider within the past 18 months? Chi-square analyses were conducted for each drug and alcohol variable with relationship to reported medical needs and primary care visits. Several variables (used meth, used cocaine, and used other illegal drugs) had no responses. A significant association between students who reported using other students ADD/ADHD medications and acute health needs was found ( $X^2 = 60.53, p < .05$ ). No other statistically significant associations were found between substance use and having a relationship with a primary care provider.

### **Results for Clinical Question 9**

Clinical question 9: Based on the data from the online survey of students enrolled in DSC during the summer of 2014, were there any demographic or socioeconomic factors that correlated with students easily identifying and regularly seeing their health care provider within

the past 18 months? Correlational analyses were used to test the relationship between regularly seeing the PCP and the interval/ratio demographic variables (age, overall health, and BMI). Because initial data screening indicated that these variables were not normally distributed, Spearman's rho two-tailed testing was performed. With respect to age, there was not a statistically significant correlation with a recent PCP visit ( $r_s = .04, p > .05$ ). The data showed a significant correlation between overall health and recent PCP visits ( $r_s = .13, p < .001$ ). The number of recent PCP visits was higher in students who reported poorer overall health scores. BMI was not found to have a significant correlation with recent PCP visits ( $r_s = .02, p > .05$ ).

Kruskal Wallis analyses were performed to test the demographic variables measured at the ordinal level. Only the variables that demonstrated statistically significant results are reported in Table 8.

Table 8

*Demographic Variables & Regular Primary Care Visits*

Variable	Chi-Square	Demographic	Mean Rank	Mean (SD)
Marital Status	19.4*	Single	361.77	1.78 (.91)
		Married	330.15	1.62 (.87)
		Divorced	467.50	2.33 (.96)
Race	18.32**	Black/African American	330.50	1.65 (.92)
		White/Caucasian	348.28	1.72 (.89)
		Hispanic	367.35	1.83 (.94)
		Asian	460.64	2.29 (.90)
		Other	524.32	2.64 (.80)

Table 8 continues

Residence	16.32**	Lives with parents or spouse	349.21	1.72 ( .89)
		Lives alone with children	438.93	2.17 ( .93)
		Lives alone	330.78	1.63 ( .83)
Insurance	151.12*	Spouse	283.55	1.39 ( .74)
		Parent	306.86	1.50 ( .79)
		Own	307.28	1.51 ( .83)
		Government	365.62	1.80 ( .91)
		None	499.44	2.42 ( .86)
Financial Aid	32.69*	Student loan	263.76	1.48 ( .77)
		Ga. Hope	286.63	1.62 ( .87)
		DSC Foundation	333.75	1.86 ( .89)
		Pell Grant	356.52	2.02 ( .96)

\* $p < .001$ \*\* $p < .01$ 

Post hoc comparison of groups was performed utilizing Mann-Whitney U on all statistically significant variables. Single students were statistically more likely than married students to have seen their PCP recently ( $U = 43874.5, p < .05$ ). Divorced students were statistically more likely to have seen their PCP recently than single students ( $U = 6006, p < .01$ ) or married students ( $U = 2286, p < .001$ ).

Asian students were statistically more likely to have seen their PCP recently than Caucasian students ( $U = 3766.5, p < .01$ ), Black/African-American students ( $U = 252, p < .015$ ), or Hispanic students ( $U = 909, p < .01$ ). Students who listed their race as other were statistically more likely to have seen their PCP recently than Caucasian ( $U = 1457.5, p < .01$ ), Black/African American ( $U = 99.5, p < .01$ ) or Hispanic ( $U = 362.5, p < .01$ ) students.

Students who reported living alone with children were statistically more likely to have seen a PCP recently than students who lived with a parent or spouse ( $U = 12389, p < .001$ ), lived with non-relatives ( $U = 1035, p < .05$ ), or lived alone ( $U = 1225, p < .01$ ).

Students who were covered under a government plan were statistically more likely to have seen their PCP recently when compared to students who were covered on their own plan

( $U = 2778, p < .05$ ), a parent's plan ( $U = 5487, p < .05$ ) or a spouse's plan ( $U = 1144, p < .05$ ). Students with no insurance were statistically less likely to have seen a PCP in the past 18 months than students covered on a spouse's policy ( $U = 4271.5, p < .01$ ) or students with their own insurance policy ( $U = 10721, p < .05$ ).

Students who received Pell Grants were statistically more likely to have seen their PCP recently than students who received the Georgia Hope Grant or Scholarship ( $U = 21545.5, p < .001$ ) or students who received student loans ( $U = 8891, p < .001$ ). Students who received DSC Foundation Scholarships were statistically more likely to have seen a PCP recently than students who received student loans ( $U = 745, p < .05$ ).

### **Results for Clinical Question 10**

Clinical question 10: Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what percentage of students felt a student health center was needed? To determine the interest in a student health center, frequencies were calculated. The overwhelming majority of students who completed the survey felt a student health center was needed on campus ( $n = 661, 90.3\%$ ).

### **Results for Clinical Question 11**

Clinical question 11: Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what percentage of students would likely use a student health center? Descriptive statistics were conducted on this data. Almost three-fourths of the students reported they would be either extremely likely or likely to use a student health center. These data are reported in Table 9.

Table 9

*Students Likely to Use a Health Center*

Variable	<i>N</i>	%	<i>Cumulative %</i>
Extremely Likely	290	39.4%	39.4%
Likely	242	32.9%	72.7%
Only use if I could not get to another medical facility	130	17.7%	90.4%
Never use	70	9.5%	100.0%

**Results for Clinical Question 12**

Clinical question 12: Based on the data from the electronic survey of students at DSC enrolled in Summer 2014, what services would students want to have available in a student health center? Percentages for each variable were calculated. The majority of students who responded felt both acute and chronic disease management services were needed. These results are presented in descending order in Table 10.

Table 10

*Requested Student Health Services*

Service	<i>N (N = 736)</i>	%
Acute Illness (flu, URI)	670	91%
Flu Vaccines	618	84%
Minor injuries (sprains, strains)	610	82.9%
Blood Pressure Monitoring	573	77.9%
Physical Exams	571	77.6%
Nutritional Counselling	562	76.4%
Family Planning/STI	510	69.3%
Mental Health Services	467	63.5%
Chronic Disease Care (diabetes, hypertension)	375	51%

**Results for Clinical Question 13**

Clinical question 13: Based on the data from the online survey of students enrolled in DSC during the Summer 2014, were there any demographic or socioeconomic factors that correlated with students' intent to use a student health center? Correlational analysis was used to test the relationship between age, overall health, BMI, and the intent to use the student health center. For this question, Likert scores were 1= extremely likely to use to 5 = never use. A statistically significant inverse relationship was found between overall health and the intent to use a student health center. Students who reported their health as poorer were more likely to report a higher intent to use the health center ( $r = -.11, p < .01$ ). Although an inverse relationship was noted between age and the intent to use the student health, this relationship was not statistically significant ( $r_s = -.03, p > .05$ ). A statistically significant inverse correlation was found between BMI and intent to use the health center. As BMI increased, students reported they were more likely to use the health center ( $r_s = -.15, p < .001$ ).

Mann-Whitney U analysis was used to compare gender. Females (mean rank = 350.89) were statistically more likely than males (mean rank = 398.18) to use a student health center ( $U = 39418, p < .01$ ).

For the remaining ordinal data, Kruskal Wallis analyses were done to determine statistical significance. Statistically significant results are reported in Table 11.



Table 11

*Demographic Variables & Intent to Use Health Center*

Variable	Chi-Square	Demographic	Mean Rank	Mean (SD)
Residence	40.98*	Campus housing	269.90	1.54 ( .59)
		Lives with non-relative	291.24	1.63 ( .83)
		Lives with parent or spouse	383.73	2.05 ( .96)
		Lives alone	422.74	2.35 (1.20)
		Lives alone with children	279.39	1.57 ( .79)
Insurance	82.58*	None	253.40	2.18 ( .52)
		Government	380.00	2.00 ( .58)
		Own	390.96	1.89 ( .57)
		Parent	396.37	1.90 ( .56)
		Spouse	461.56	1.73 ( .48)
Financial Aid	14.95**	Student Loan	263.76	2.09 (1.07)
		Georgia Hope	286.83	2.07 ( .99)
		Pell Grant	356.52	1.78 ( .88)

\* $p < .001$ \*\* $p < .01$ 

Post hoc comparison of groups was conducted using Mann-Whitney U analyses for all statistically significant results. Students living in campus housing were statistically more likely to use the student health center than students who live with parents or a spouse ( $U = 7810.5$ ,  $p < .001$ ) or those who live alone ( $U = 742.5$ ,  $p < .001$ ). Students who lived with a non-relative were statistically more likely to use the student health center than those who live with parents or a spouse ( $U = 8266$ ,  $p < .01$ ) or students who live alone ( $U = 783$ ,  $p < .01$ ). Students who live alone with children were statistically more likely to use the student health center than those who live with parents or a spouse ( $U = 1186$ ,  $p < .001$ ) or students who live alone ( $U = 1146$ ,  $p < .001$ ).

Several statistically significant relationships were found between insurance coverage and intent to use the student health center. Students who are covered on a spouse's insurance plan are statistically less likely to use a student health center than those who have their own policy

( $U = 3396, p < .05$ ) or students covered a parent's plan ( $U = 7285, p < .05$ ). Students without medical insurance are statistically more likely to use the student health center than those with their own insurance policy ( $U = 7941, p < .001$ ), students covered on a government plan, students covered on a parent's plan ( $U = 16336.5, p < .001$ ), or covered on a spouse's plan ( $U = 2500, p < .001$ ). Students with a government plan were more likely to use a student health center than those covered on a spouse's plan ( $U = 1120, p < .05$ ).

With respect to financial aid status, two relationships demonstrated statistically significance. Students who received the Pell Grant were statistically more likely to use a campus health center than those who received student loans ( $U = 11025, p < .05$ ). Students who received the Hope Scholarship or a Hope Grant were statistically more likely to use the health center than those who received the Pell Grant ( $U = 25308, p < .05$ ).

### **Summary**

This section presented the results of the research study. A total of 736 students completed the DSC Student Health Needs Survey during Summer 2014. The primary purpose of this survey was to determine the student health needs as well as the student interest in opening a student health center at DSC. Several findings from the survey are vital to the development of proposal for a student health center. First, the majority (65.2%,  $n = 480$ ) of students who completed the health survey have a history of at least one physical or mental health condition, with some students reporting four or more health conditions. Second, 63% ( $n = 464$ ) of students who completed the survey reported having sought medical care within the past 18 months for an acute or urgent condition. Third, 25% ( $n = 185$ ) of students at DSC have no medical insurance coverage. Fourth, approximately 75% ( $n = 532$ ) of students reported they would be likely or extremely likely to use a student health center, not surprisingly, those without medical insurance

were more likely to use a student health center. Finally, over 90% ( $n = 661$ ) of students felt a student health center was needed at DSC.

## Chapter V

### Discussion

This section presents discussion of the study's findings and results. Outcomes will be compared to previous studies on the health of college students. Also included in this section are the strengths, limitations, implications for practice, and dissemination. This project was important in that it was the first survey done at DSC that assessed the health needs of the students. This project was also one of the few done nationally specifically designed to help establish a student health clinic. Not only did the project provide information on the need for a health center at DSC, the project also provided the college with information about students' interest in a student health center and likelihood to use the center. Additionally, this project added to original research in that it assessed the relationship between having a primary care provider on acute and chronic health needs on a college campus. It also added to the knowledge base regarding insurance status and common acute and chronic health needs for college students.

#### **Specific Aim I: Identify the common medical problems of students at Dalton State College**

Clinical questions one through three examined the most common acute and chronic health needs of students enrolled at DSC. The project utilized several large studies that identified the most commonly reported medical and mental health needs of college students nationally to develop the survey that was administered to students at DSC in the summer of 2014 (American College Health Association [ACHA], 2013; Chiauzzi et al., 2011; Collins et al., 2012; Morrell, et al., 2012).

Clinical question one examined the most common acute health needs of students. The National College Health Assessment (NCHA) defined acute needs as the health needs for which a student sought care in the previous 12 months (ACHA, 2013b). Since students did not have easy access to medical care at the college, the researchers considered that students might wait

until school breaks to seek medical care and extended the time frame for acute care visits to 18 months.

Clinical question two examined the most common chronic health needs of students at DSC. Chronic health needs were defined as a condition for which students has received a medical diagnosis of a chronic disease or for which a student received on going care (Centers for Disease Control and Prevention [CDC], 2013b).

Clinical question three examined the relationship between both acute and chronic medical needs and substance use. Students were only asked to self-disclose their substance use in the past 30 days. This timeframe is consistent with other studies that used by other substance use tools (ACHA, 2013; DeMartini & Carey, 2009).

Clinical questions four and five examined the relationship between acute and chronic health care needs of students and demographic variables. Several variables demonstrated significant relationship with student health needs. Variables are discussed in relation to acute and chronic health needs.

Clinical questions four and five examined the relationship between acute and chronic health care needs of students and demographic variables. Several variables demonstrated significant relationship with student health needs. Variables are discussed in relation to acute and chronic health needs.

**Acute and Chronic Physical Health Needs.** Students who completed the DSC Health Needs Survey were asked to self-report their acute health needs. DSC students reported upper respiratory illnesses (32%,  $n = 274$ ), allergies (24%,  $n = 177$ ), and contraception (23.4%,  $n = 172$ ) as their most common acute health needs. These findings were similar to the results of the NCHA Fall 2012 survey (ACHA, 2013b). Students ( $N = 28,237$ ) who completed the NCHA Fall

2012 survey were asked to self-report their acute medical conditions. The primary reasons reported were allergies (20%) and viral and bacterial illnesses ( $\approx 60\%$ ), which included strep throat, sinus infections, urinary tract (ACHA, 2013b). The NCHA collected information on self-reported sexually transmitted infections (STIs) and sexual behavior but not on percentage of student who sought contraceptive services. Two large scale surveys reported on the availability of condoms, emergency contraception and rapid testing for STIs but no data was found utilization of other types of reproductive health services (Butler, et al., 2011; Butler et al., 2012). In a small survey ( $N= 78$ ) of college students, Eisenberg et al. (2012) found that students desired condom distribution programs, both on and off campus clinics that provided reproductive health services, and sexual health information.

**Chronic Physical Health Needs.** Although the literature discusses the increase in chronic medical health needs of college students, little information is available about specific chronic medical health needs. Data for chronic health needs is generally reported as aggregate data (Collins et al., 2012). Nationally, between five and 18 % of young adults report at least one chronic health need (ACHA, 2013; Centers for Medicare & Medicaid Services [CMS], n.d. Collins et al., 2012). The DSC data found that approximately 25% ( $n = 181$ ) had one chronic health need and 12% ( $n = 91$ ) had four or more chronic health needs.

Students participating in the DSC health survey listed allergies as the most common chronic medical need (40%,  $n = 295$ ). Allergy is a broad diagnostic term which includes respiratory, skin, and food allergies, which contributes to the high number of students reporting allergies (Jackson, Howie, & Akinbami, 2013). Also, the location of DSC may contribute to the high incidence of allergies. High pollen counts, mold, and high humidity, which are more common in the southeast, often trigger allergies (Asthma & Allergy Foundation, n.d).

Recent data from the American Heart Association reported that 18% of young adults aged 20-34 had hypertension (Go et al., 2013). Similarly, 17% ( $n = 120$ ) of students completing the DSC Health Needs Survey reported a history of coronary artery disease (CAD) (hypertension and hyperlipidemia). However, less than 10% ( $n = 68$ ) had been treated in the past 18 months for these conditions. Nationally, almost 50% of young adults 25-29 and 40% of young adults 19-25 reported they did not seek needed medical care because of cost (CMS, n.d.; Collins, et al., 2012). The difference between the number of students with a medical history of hypertension and/or cholesterol and those who have received care in the past 18 months seems to suggest that students may not be getting appropriate care for their chronic diseases. In this study almost 33% ( $n = 37$ ) of students with a history of CAD did not have medical insurance, some of the students who had a diagnosis of CAD may not have had the financial resources to continue with ongoing care. Inadequate treatment of hypertension and cholesterol has been linked to increased incidence of stroke, coronary heart disease, chronic kidney disease, and death (Wang & Vasan, 2005). Continuous and adequate control of CAD reduces long term complications (Wang & Vasan, 2005). Providing individualized health risk assessments and disease management through student health services can help reduce the long term effects of chronic diseases (Morrell et al., 2012).

**Acute and Chronic Mental Health Needs.** College students also have a high incidence of acute mental health needs. Academic pressures, such as exams, as well as relationship pressures, such as living with roommates contribute to psychological stress in college (Sander, 2013; Yorgason et al., 2008). Anxiety (10.7%,  $n = 79$ ) and depression (8.7%,  $n = 64$ ) were the most common acute mental health needs identified by students at DSC. These results are lower than reported in other studies. In the NCHA Fall 2012 survey, 12 % of students reported being

treated for anxiety and 11 % of student reported being treated for depression in the previous year (ACHA, 2013b). Sander (2013) reported that approximately 25% of college students require medication for mental health issues during college.

Many students enter college with a chronic mental health issues. Up to 50% of students have reported at least one major depressive episode in the year prior to entering college (Sander, 2011). Approximately 35% ( $n = 251$ ) of students at DSC reported anxiety and depression as a chronic medical condition. Yorgason et al. (2008) reported that students with severe distress were more likely to report illnesses and seek care. It is possible that only those students with more severe mental health issues responded affirmatively to this question.

There are other factors may have contributed to the lower results at DSC. One-fourth (25%) of DSC students lack medical insurance. These students may have been unable to access mental health services. Even though counselling services are currently offered on campus, there is currently a six-week wait for new, non-urgent appointments (T. McKie-Voerste, personal communication, September 9, 2014). Previous studies have demonstrated that lack of medical insurance prevents students from seeking mental health services (American Psychiatric Association [APA], 2014; Collins et al., 2012). The student health clinic would improve access to basic mental health services.

Additionally, shame and insecurity often prevent patients from disclosing mental health issues may have impacted the self-reporting of this issue (Yorgason et al., 2008). Patients with mental health issues often do not feel comfortable self-disclosing their condition due to fears of being stigmatized (Corrigan, & Kosyluk, 2013). Even though the survey was anonymous, students at DSC may have still felt uncomfortable in reporting a mental health diagnosis because of the stigma associated with mental illness.



Other factors that way have contributed to the low report of mental health issues are related to ethnicity and gender. In this population approximately 16% of the respondents were Hispanic. The results for mental health needs for Hispanic students are reported below. Mental illness often goes undiagnosed in this ethnic group, misinterpreted as nervousness or a physical illness (APA, 2014). Hispanic students are more likely to rely on their family, church, or a traditional healer than non-Hispanic students (APA, 2014). Less than ten percent of Hispanics with a mental health need seek care from a mental health specialist (APA, 2014; Yorgason et al. 2008).

### Hispanic Mental Health Needs

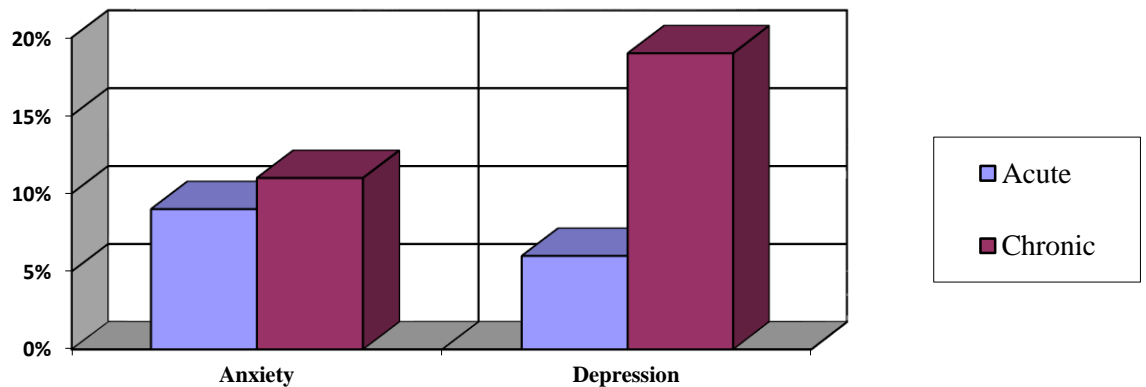


Figure 2. Hispanic Mental Health Needs.

As DSC, almost 10% of male students reported being treated within the past 18 months for anxiety. Results for mental health needs of male students are reported below. Not only are male students less likely than women to utilize mental health services, they are less likely to recognize the symptoms of mental health issues (National Institutes of Health [NIH], 2013; Yorgason et al., 2008). Men may attribute anger and fatigue to circumstances other than recognizing that mental illness may be the underlying cause of their symptoms (NIH, 2013).

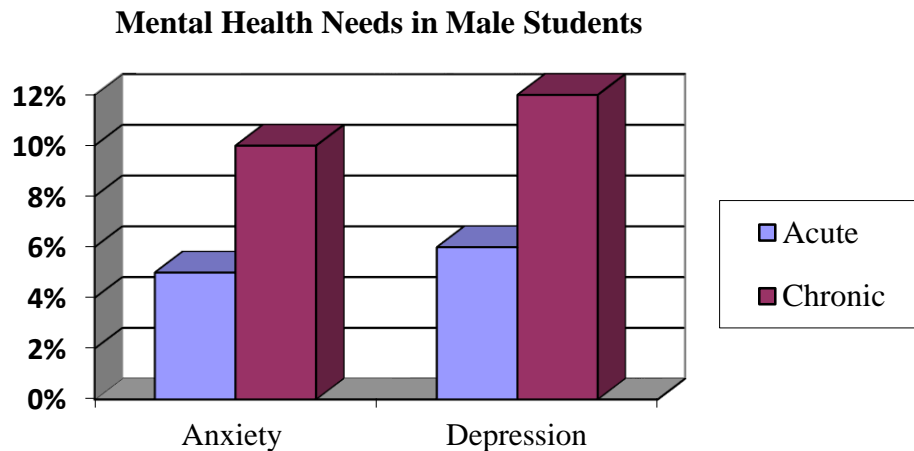


Figure 3. Mental Health Needs of Male Students

**Substance Use.** While 12% of students ( $n = 91$ ) met the National Institute of Alcoholism and Alcohol Abuse (NIAAA, 2013) risky drinking criteria (5 or more drinks per day or 14 or more drink per week for males or 4 or more drinks per day or 7 or more drinks per week for females), this was not associated with any increase in acute or chronic health needs. This statistic is lower than the national risky drinking behavior for college students of about 20% (National Institute of Alcoholism & Alcohol Abuse [NIAAA], 2013). The large number of health professions students (42%,  $n = 307$ ) may have contributed to the lower percentage. High risk drinking behavior could result in a suspension from their programs. Also, 32% ( $n = 235$ ) of students were under age 21. Fear of legal consequences could have kept them from reporting their use of alcohol. High risk drinking behavior is more common in males than females (DeMartini & Carey, 2009). Only 22% of the survey respondents at DSC were male. Of those male students, 14.8% reported high risk drinking behaviors.

Only one substance issue was statistically significant with respect to medical needs, using another person's ADD/ADHD medication ( $X^2 = 6.05, p = .048$ ). However, there was a low response to the variable ( $n = 12$ ; 1.6% of respondents). This may be the cause of the statistical

significance. This result was lower than has been reported in previous studies. DeSantis, Webb, & Noar, (2008) reported 34% ( $N = 1,811$ ) of students admitted to illicit use of ADHD medications during periods of high stress. Two factors may be responsible for the low response rate to this variable at DSC. First, the question only asked about use in the last 30 days. Second, the study ended before final exams. Students report a higher use of ADD/ADHD medication during periods of high stress, such as exams (DeSantis et al., 2008).

Several variables (used meth, cocaine, or other illegal drugs within the past 30 days) had no responses. Similarly, less than two percent of students taking the NCHA reported using amphetamines, methamphetamine, opiates, or other illegal drugs (ACHA, 2013b). Even though the survey was anonymous, students may have been afraid of a potential investigation if they reported illegal drug use or the use of other's prescription. Also, a positive drug screen for health professions students would result in dismissal from all of DSC's health program.

While some studies collected data on the use of alcohol and drugs, no attempt has previously been made to investigate the relationship between substance use and chronic health needs (ACHAb, 2013; DeMartini & Carey, 2009). High risk drinking behavior has been associated with high risk sexual behavior, violence, and academic problems (DeMartini & Carey, 2009). However, no studies were found that investigated the relationship between acute medical needs.

**BMI and Health Needs.** At DSC, 52.4% ( $n = 386$ ) of students were overweight or obese with an average BMI of 27.5. Over 65% of students had at least one chronic or acute health need. The high percentage of overweight and obesity likely contributed to the high percentage of chronic health needs reported by DSC students.

Several statistically significant correlations were found related to BMI. BMI was found to have a positive correlation with overall health. As BMI increased, students reported poorer overall health scores ( $rs = .32, p < .001$ ). Other researchers have reported approximately 10% of students categorized their health as fair or poor (ACHA, 2013b, Zulig, 2005). However, no study was found that examined the relationship between BMI and health scores.

Statistically significant correlations were found between BMI and acute health and BMI and chronic health needs. At DSC, students with higher BMI scores reported a greater number of chronic health needs ( $rs = .20, p = <.001$ ). Overweight and obesity are associated with an increased risk of metabolic syndrome. Morrell et al. (2013) found that 50% of students studied had at least one risk factor for metabolic syndrome. Metabolic syndrome has been associated with an increased risk of developing Type II diabetes, hypertension, and stroke, if not properly managed (National Heart Lung and Blood Institute, 2011). Higher BMI scores are associated with a higher incidence of chronic diseases, such as diabetes, hyperlipidemia, and hypertension (CDC, 2013a; CDC 2014). At DSC, 100% of students who reported a history of diabetes, 80% of students who reported a history of hypertension, and 76% of students who reported a history of hyperlipidemia were overweight or obese. Early intervention and disease management is vital to reducing the incidence of myocardial infarctions, cerebral vascular accidents, and renal failure (CDC, 2013A, CDC, 2014). A student health clinic at DSC could easily address these needs.

Students with higher BMI also reported more acute health care needs ( $rs = .07, p = .048$ ). At DSC, higher BMI scores are also associated with acute medical conditions, such as acute respiratory illnesses, and headaches ("Obesity," n.d.; Pucci & Finer, 2011). At DSC, overweight or obese students accounted for 94% of students who reported seeking acute care for migraines and 62% of students who reported seeking acute care for upper respiratory illnesses.

**Health Needs and Other Demographic Variables.** Increasing age was also found to have a weak positive correlation with chronic health needs. The age of students who completed the DSC Student Health Needs Survey ranged from 18-60. DSC students reported more chronic health needs as age increased. In this study, a statistically significant correlation was noted between age and BMI ( $r_s = .323, p < .001$ ). As age increased, BMI increased. In a longitudinal study of 10,000 subjects, Malhotra, Ostbye, Riley, and Finkelstein, E. (2013) found the average annual weight gain was slightly over one pound for both males and females. Muscle mass decreases with age and is replaced by adipose tissue as an individual ages (Malhotra et al., 2013). Men gained slightly more weight than women, 1.20 pounds compared to 1.15 pounds, respectively. At DSC, 50% of females and 61% of males were overweight or obese.

Female students were statistically more likely to have acute health needs than men ( $U = 31026, p < .001$ ). At DSC, 68% ( $n = 384$ ) of females reported acute health needs compared to 47% ( $n = 73$ ) of males. See Figure 3. The results for acute data are comparable to those found in the National College Health Assessment, where 62% of female students reported more acute health needs compared to 47% of male students (ACHAb, 2013).

#### Acute Health Needs by Gender

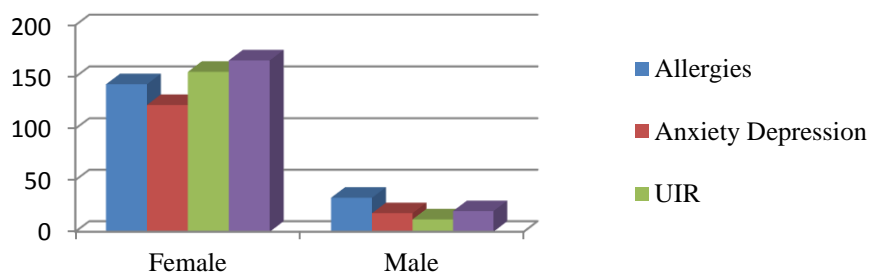


Figure 4. Acute Health Needs by Gender

Female students were also statistically more likely to report chronic health needs ( $U = 31026.500, p = < .001$ ). See Figure 4. Approximately 66% of female students at DSC ( $n = 374$ ) compared to 60% ( $n = 98$ ) reported at least one chronic health need. Collins et al. (2012) reported that 18% of young women had a least one chronic health need compared to 12% of young men. In this study, students were asked to report chronic mental health as well as chronic physical health needs. Collins et al. (2012) reported only the category of chronic disease and not specific diseases. It is possible that this study only included chronic physical health needs.

### Chronic Health Needs by Gender

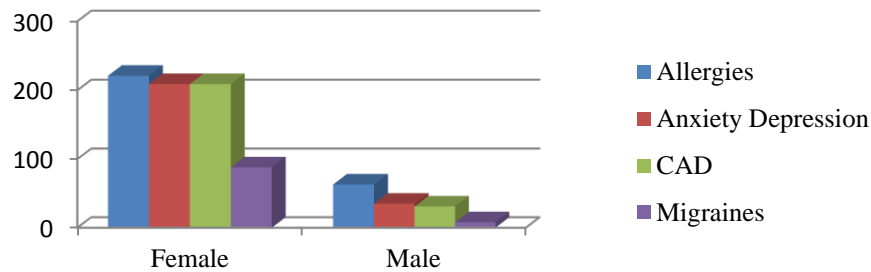


Figure 5. Chronic Health Needs by Gender

Single students were statistically less likely to report both acute and chronic health needs when compared to married students. At DSC, 69% of married students ( $n = 140$ ) and 69% of divorced students ( $n = 25$ ) reported chronic health needs compared to 60% ( $n = 311$ ) of single students. See Figure 5. The most common chronic health needs for married students were allergies (41%,  $n = 83$ ) and anxiety (23%,  $n = 46$ ). The mean age for single students ( $n = 491$ ) was 22.13 compared to 34.59 for married students ( $n = 204$ ), and 40.06 ( $n = 36$ ) for divorced students. Since more single students are younger, it would be expected they have fewer health needs.

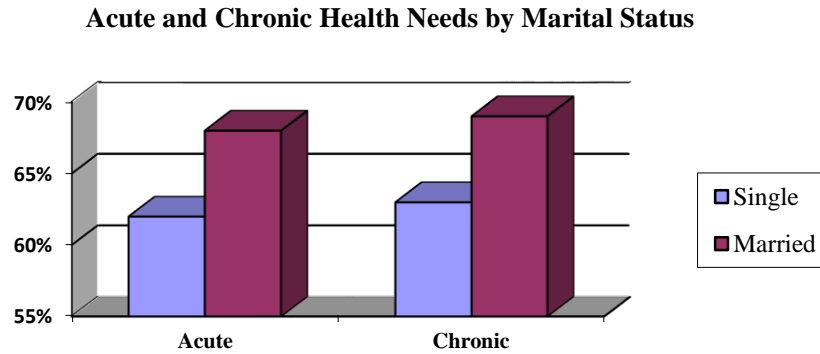


Figure 6. Acute and Chronic Health Needs by Marital Status

Caucasian students were the most likely to report acute and chronic health needs at DSC. Allergies (43%,  $n = 234$ ) and anxiety (26%,  $n = 141$ ) were the most commonly reported chronic health needs of Caucasian students while allergies (27.8 %,  $n = 150$ ) and upper respiratory infections (27.5 %,  $n = 149$ ) were the most common acute needs. The percentage of Caucasian students without medical insurance (25%,  $n = 138$ ) was similar to the percentage of Hispanic students without insurance (29%,  $n = 36$ ) or Asian students without insurance (28%,  $n = 4$ ). The percentage of African-American students without insurance was 12% ( $n = 5$ ). Since Caucasian, Asian, and Hispanic students have roughly the same percentages of student without medical insurance, the increased number acute and chronic visits did not appear to be related to insurance status. However, since almost three-fourths ( $n = 540$ ) of the sample was Caucasian compared to only 5.4% African American ( $n = 39$ ) and 16.1% Hispanic ( $n = 117$ ), it is likely the results would not be statistically significant if the sample was more heterogeneous.

**Specific Aim II: Explore the relationship between the identified healthcare needs of students at DSC and having a primary healthcare provider**

Clinical questions six through nine examined the relationship between regular visits to a PCP and acute and chronic health needs. For the purposes of the study, regular was defined as if the student identified a PCP and had had at least one visit in the past 18 months.

Recently seeing a PCP showed a statistically significant relationship with more chronic health needs ( $X^2 = 15.45, p < .001$ ). Having a PCP that was seen regularly was also statistically significantly associated with more acute health needs ( $X^2 = 64.06, p < .001$ ). Students with chronic diseases may require more visits for disease management. Data on chronic diseases shows that as the number of chronic diseases increases, both health care spending and number of provider visits increases (Health and Human Services [HHS], 2014). Patients with no medical conditions are seen by their PCP an average of once per year while students with one chronic condition are seen over three times per year (HHS, 2014). Nationally across all age groups, patients with chronic diseases account for 76% of all PCP visits and 91% of all prescriptions filled annually (Partnership to Fight Chronic Disease, n.d.). Providing health promotion services on campus such as nutritional counselling and increasing physical activity opportunities has been effective in improving the health of students with chronic disease (Griffin, Green, & Jefcoat, 2010). Establishing a partnership with community medical providers and a college health center can be part of an initiative to improve chronic disease management and reduce the number of PCP visits annually.

Question nine examined the relationship between PCP visits and demographic variables. The data found a weak statistically significant correlation between overall health and a recent PCP visits ( $r_s = .13, p < .001$ ). As students reported poorer health, they had more frequent visits to their PCP. Students with no insurance were less likely to have seen a PCP than students covered on a spouse's plan or with their own insurance policy ( $X^2 = 151.12, p < .001$ ). At DSC, 69% ( $n = 128$ ) of students who reported having no medical insurance did not have a PCP. Collins et al. (2012) found only 38% students who lacked insurance had a regular medical provider or clinic access. One-third of students in that study who had been without medical



insurance for one year reported they had delayed or not sought care (Collins et al., 2012). With the exception of the Whitfield County Health Department, which primarily serves local residents, Dalton does not have sliding scale or free clinic. This leaves students with limited options for affordable care in the area. Since almost 60% ( $n = 139$ ) of students with at least one chronic medical condition did not have a PCP, not having access to affordable medical care increases the likelihood that these students will experience worsening of their chronic conditions (Wang & Vasan, 2005). The lack of chronic disease management for hypertension and hyperlipidemia will increase their risk of permanent and disabling medical conditions, such as stroke or chronic kidney failure (Wang & Vasan, 2005). The most common chronic disease for students without insurance was allergies (34%,  $n = 85$ ). Allergies have been associated with increased absenteeism and poor academic performance (Turner, Testa, Hayes, & Su, 2013). School health centers have proven effective in decreasing absenteeism which resulted in improved academic performance (Guo et al., 2010).

Students who live alone with children were statistically more likely to have seen a PCP recently than other student groups ( $X^2 = 16.32, p < .01$ ). At DSC, students who live alone with children had a high percentage of chronic diseases (61%,  $n = 40$ ). Students with children may be exposed to more communicable diseases. Children are often the primary source of transmission for viral illness in a family (Chow, Morrow, Booy, & Leask, 2013). Since parents have to provide prolonged and direct care, especially for younger children, they have an increased exposure to the illness and are more likely to become ill themselves. Adults who live alone with children may have an increased risk of exposure to illness because they may be the only one available to care for a sick child.

**Specific Aim III: Identify the need for a student health center at Dalton State College**

Clinical questions ten through thirteen examined the student's perceived need for student health centers. These questions sought student input into the desired services and potential use of a clinic. Student support for the health center was extremely high with 90% ( $n = 661$ ) of students who completed the survey feeling a health center was needed. However, several factors may have affected these results. First, it is likely that students who felt the need for a health center were highly motivated to complete the DSC Student Health Needs Survey. Students who were less interested in the health center may have not felt the need to complete the survey. Second, 41% ( $n = 307$ ) of the students who participated were from the school of health professions. It would be expected that these students would be acutely aware of health needs and more familiar with the role of health services on campus. Third, students in health majors may have been motivated by the possibility of utilizing a health center as a clinical site.

Almost three-fourths (72.7%,  $n = 592$ ) of participants identified they would be likely or extremely likely to use a health center. Less than 10% ( $n = 70$ ) of students reported they would never use the health center. A higher percentage of student athletes were less likely to or would never use the health center when compared to non-athletes. Approximately 40% of student athletes ( $n = 9$ ) were not likely to use the health center compared to 28% of non-athletes ( $n = 191$ ). Student athletes are mandated to have medical insurance which would cover their health care visit (R. Skeel, personal communication, March 26, 2014). Since athletes are required to have an annual medical release to play college sports, they would be more likely to have a relationship with a primary care provider (R. Skeel, personal communication, March 26, 2014). Also, these students have access to a trainer who could treat minor injuries and illnesses (S.

Rynas, personal communication, March 26, 2014). Only 33% ( $n = 134$ ) of students who had a PCP provider were likely or extremely likely to use the health center compared to almost 85% ( $n = 196$ ) of students who did not have a PCP.

Students were most interested in services that concentrated on treatment of acute illnesses (91%,  $n=670$ ) and injuries (83%,  $n=610$ ). In a similar study, Mello (2011) found that common illness such as cough and sinus infections, immunizations, and minor trauma were the three most common responses to a survey of health center usage. The Fall 2012 National College Health Assessment (NCHA) found that approximately 60% of college students sought care for acute viral and bacterial illnesses in the past year, while on 10% of students sought care for injuries (ACHA, 2013). The majority of participants at DSC expressed an interest in having preventative services, such as flu vaccines (84%,  $n = 618$ ), nutritional counselling (76%,  $n = 562$ ), and blood pressure monitoring (78%,  $n = 573$ ). Students have shown an interest in these services previously. DSC has sponsored a health fair for the past two years. Approximately 300 students attended each year. Participants in the health fair received flu vaccines, blood pressure and blood glucose monitoring, nutritional counselling and other preventative services. Separate from the health fair, the college, in conjunction with the Mary Ellen Locher Cancer Treatment Center, has offered mobile mammogram screening on campus. DSC students also utilized this screening when available on campus.

Students also requested services to help them with the management of chronic disease. Interest in these services is important. College has been identified as the optimum time to introduce preventative care and positive health behaviors in an effort to reduce lifelong health problems (Gow et al., 2012; Topp et al., 2011). Since college students may feel empowered by their new found independence, those who receive appropriate medical care and counselling are

more likely to institute positive health behaviors, such as smoking cessation, increased activity, and healthier eating (Sailors et al., 2010; Unwin, Goode, Reame, & Quinlan, 2013).

The majority of students (70%,  $n = 512$ ) requested reproductive health services be provided on campus. Having easy, accessible reproductive services must be a priority on college campuses, since college women have one of the highest unintended pregnancy rates in the country (Bryant, 2009). In a study of five Minnesota colleges regarding health resources in colleges, researcher found that students wanted condom distribution programs (88.5%), sexual health services (81%), and sexual health information (72%) (Eisenberg et al., 2012). Butler et al. (2011) found that condom distribution programs are one of the primary services offered by student health services. DSC currently has a condom distribution program for the residents of student housing. This has been a very successful program with a large volume of condoms being distributed each week (N. Bates, personal communication, February 26, 2014). Having reproductive services would allow all students at DSC the same access. Based on the number of students who utilize the condom distribution program in residence housing, it would be expected that other students on campus would be interested in expanding the program and having other contraceptive services.

Two state colleges in Georgia have started health services in the past nine years, Gordon State College and Middle Georgia State College. While neither college has data on the percentage of students served by the health centers, both centers see an average of 10 patients per day during fall and spring semester (M. Stewart, personal communication, July 25, 2014; A. Turner, personal communication, July 25, 2014). Both health centers employ one full time nurse practitioner and no additional full time staff. Middle Georgia State College utilizes student workers for to help with clerical duties (M. Stewart, personal communication, July 25, 2014).

Both clinics offer treatment for minor illness, influenza vaccinations, health counselling, and wellness education (M. Stewart, personal communication, July 25, 2014; A. Turner, personal communication). In each clinic a local physician serves as the medical director and consultant. In addition, both clinics have established a referral arrangement with health departments and hospital for services the clinic does not offer.

Clinical question 13 examined demographic and socioeconomic factors and a student's likelihood to use a student health center. It should be noted that this variable ranged from 1 = "extremely likely to use the health center" and 4 = "never use the health center" in this survey. Statistically significant correlations were noted between the intent to use a health center, overall health, BMI, and alcohol use. All these correlations were weak. Students with worsening health were more likely to use a health center ( $r_s = -.11, p < .01$ ). Students who reported a higher BMI were more likely to use the health center ( $r_s = -.15, p < .001$ ). Over 50% ( $n = 386$ ) of the students who completed the survey were overweight or obese by BMI. Approximately 24% ( $n = 175$ ) of respondents were overweight, 20% ( $n = 149$ ) were obese, and 8% ( $n = 62$ ) were morbidly obese.

**Percentage of Overweight and Obese**

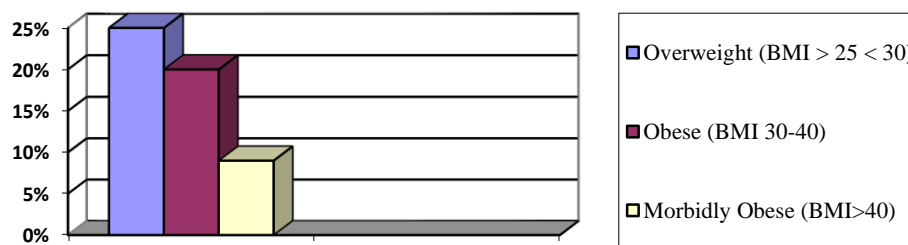


Figure 7. Percentage of Overweight and Obese Students.

Overweight and obesity have been linked to an increased risk of metabolic syndrome, diabetes, and cardiovascular disease (CDC, 2013b; CDC, 2014; Morrell et al., 2012). An

ongoing study of 2,722 college students found that 44% of overweight men and 20% of women had at least two criteria for metabolic syndrome and required treatment for elevated blood pressure, elevated blood glucose, or elevated blood lipids (Morrell et al., 2012). If measures are not taken to lower the patient's risk of metabolic syndrome, the lifetime risk of developing a chronic, debilitating medical condition, such as diabetes increase (National Heart Lung and Blood Institute, 2011). Student health centers have demonstrated effectiveness in improving access to care and reducing the risk factors for chronic diseases (Gao et al. 2010). Health programs on college campuses which combine internet monitoring and face to face counselling have been effective in weight reduction (Gow et al., 2012). College students are often more compliant with diet and lifestyle changes than older adults (Morrell et al., 2012). Providing a combination of disease management and education during college is critical to the prevention of debilitating complications from chronic diseases.

Approximately 12% ( $n = 91$ ) of the students met the National Institute of Alcoholism and Alcohol Abuse at risk criteria for problem drinking (NIAAA, 2013). While these students were statistically more likely to use the health center ( $rs = -.075, p < .05$ ), at risk drinking was not associated with increased acute or chronic health needs. Nationally, engaging in risky drinking in college students has been associated with increased non-fatal injuries, illnesses, and unprotected sex (NIAAA, 2005). Students with a history of alcohol use may be more likely to use the center for these reasons.

Female students reported a higher intent to use the health center than males ( $U = 39418, p < .01$ ), which is consistent with the NCHA data (ACHA, 2013b). Nationally, men of all ages are 24% less likely to have seen a healthcare provider in the past year than women (Agency for Healthcare Research and Quality [AHRQ], 2012). At DSC, female students

(68%,  $n = 374$ ) also reported more acute and chronic health needs than male students (60%,  $n = 98$ ). At DSC, 100% ( $n = 564$ ) of women thought reproductive health services should be offered. Women are likely to seek reproductive care for menstrual problems, screening for sexually transmitted infections, and emergency contraception (ACHA, 2013b). Many sexually active college women use hormonal contraceptives which require a medical examination and prescription (American College of Nurse Midwives, 2013). Women also seek reproductive health services to prevent an unintended pregnancy which would interrupt their college career (Bryant, 2009). For women enrolled in a community college such as DSC, the impact of an unintended pregnancy during college can have a devastating effect on a woman's college career. Women who have college interrupted because of pregnancy are 65% more likely not to complete college than women who do not have a pregnancy during college (Boggs & Duncan, 2014).

Transportation issues and limited access to local providers has been an argument for providing student health services in rural areas (Hurley, Turner, & Floyd, 2000; Woolard & Donahue, 1995). Student health centers provide services that meet two primary needs of students, affordability and convenience (Eisenberg et al., 2012). The majority of students (85%,  $n = 215$ ) who reside in residence housing are from outside the Dalton area and approximately one-third do not have vehicles on campus (N. Bates, personal communication, February 28, 2014). Not surprising, students living in campus housing were statistically more likely to utilize a health center than those students who live with a parent, spouse, or who live alone. Of the students living in campus housing, allergies (83%) and asthma (33%) are the most common reported chronic medical needs. Both diseases contribute to absenteeism and decreased academic success (Guo et al., 2010). In addition, students with poorly controlled asthma and allergies are more susceptible to acute upper respiratory infections (Asthma and Allergy Foundation of

America, n.d.). Providing ongoing care for asthma and allergy patients on campus could prevent complications and lessen the negative academic impacts resulting from lack of follow-up care.

Upper respiratory infections accounted for 33% of the chronic health needs of student in residence housing. Since respiratory infections spread rapidly in close contact, prompt treatment of upper respiratory infections could lessen the spread to other students on campus (Turner & Hurley, 2002).

Nationally, lack of health insurance and limited financial resources are major impediments to students accessing medical care (Collins et al., 2012). Up to 60% of young adults report they have been forced to delay care, not fill a prescription, or not get adequate follow-up due to lack of resources (Collins et al., 2012). Students without insurance are also less likely to have a primary care provider (Collins et al., 2012). In Whitfield and surrounding counties, many PCPs in the area have long waiting list for new patient appointments. New patients may wait up to three months for an appointment and may be told they must bring the expected cost of the first visit, often \$100-\$200 to the appointment (D. Chestnut, personal communication, July 24, 2014). While students can be seen at walk-in clinics, these clinics require full payment before a patient without medical insurance is seen (D. Chestnut, personal communication, July 24, 2014). Students without medical insurance find it difficult to be seen for acute illnesses As expected, students without insurance reported the highest intent to use the student health center ( $X^2 = 82.58$ ,  $p < .001$ ). Since 25% of students at DSC did not have medical insurance, a student health center would not only improve access to care for these students but might be their only accessible source of primary care.

When considering the financial aid status of students, those who received Pell Grants reported the highest intent to use the health center ( $X^2 = 14.95$ ,  $p < .01$ ). Since Pell Grants are



based on need, these students have limited financial resources to pay for medical care. DSC has a number of students who have returned to school after losing a job. While these students receive Pell Grants that cover their educational expenses, after their unemployment benefits end, they may not have any additional sources of income. These students would not qualify for PeachCare because of age limitations nor do they have the medical needs that would qualify them for Medicaid. For these students, a health center might be their only option for acute or non-emergent medical care.

### **Strengths**

The greatest strength of this translational project is the size of the sample ( $n = 736$ ). The data collection tool was designed specifically for this campus based was based on national instruments. A pilot of the data collection tool was conducted to test for validity and ease of use (Grove et al., 2013)

This project was unique in several ways. Only one additional study was identified that discussed using a survey to determine student interest in a student health center (Mello, 2011). While that study did seek students input into the type of services, the researcher did not assess actual student health needs (Mello, 2011). This project assessed the chronic and acute student health needs as well as the students' interest and likelihood to use the health center.

This study also involved the key stakeholders, student government leaders and currently enrolled students, to help determine health programming at DSC. Involving stakeholders in determining health programming had been linked to successful implementation and increased participation of the community (Standish & Ross, 2013). Some studies were found that utilized student input for health promotion programs or for specific interventions. Delta State University surveyed students to determine negative health behaviors, such as lack of exercise and substance

use and health promotion programs (Griffin et al., 2010). Walters and Neighbors (2011) used a survey to determine student's acceptance of a web-based alcohol education program. Eisenberg et al. 2012 surveyed students to identify the most needed sexual health services. However, no studies were found that utilized student input for broader health planning. This translational project is important in that it sought student input into the need for a student health center as well as the type of services that should be offered. Data from the survey can be used to establish evidence based programs for a student health center at DSC.

Most current research on the health needs of college students focuses on mental health issues, violence, and sexual health (DeMartini & Carey, 2009; Dunne et al., 2007; Gray, 2012; Unwin et al., 2013). Little information is available on the chronic physical health needs of students and no study could be found that assessed specific health needs. Most information on chronic health needs tends to be provided as aggregate data from insurance companies or government websites. This project gathered data on specific acute and chronic health needs of students. This project also correlated data on acute and chronic health needs with having an easily identified primary care provider. No previous study was found that examined this relationship. Also, unique to this project was the attempt to determine if any demographic variables were associated with a higher incidence of acute or chronic health needs. While the NCHA provides information on acute health needs, it is presented as raw data and not associated with any demographic data.

Although some aggregate national data was identified on student health needs, no data was found for individual colleges that assessed acute health needs. Two studies were found that assessed hypertension, metabolic syndrome, and obesity, but none were found that assessed for multiple chronic diseases (Morrell et al., 2012; Singleton et al., 2011).

**Limitations**

There were several limitations to the survey. First were the concerns about the timing and study participants. Since the survey was conducted during the summer semester, there was concern that the summer student population may not be representative of the general student population. Only 28% of the survey participants were enrolled part time compared to 39% of students in Fall 2013. Part time students often work and may have access to insurance through their employer. The population in the summer was older with 39% of students being over age 25 compared to 26% of student being over age 25 in Fall 2013 (Dalton State College, 2013). The percentage of students with chronic medical needs could be higher in the sample than the total student population since the incidence of chronic disease increase with age. Students with more medical needs may have been more likely to complete the survey since they could have a greater need for the clinic. Another limitation of the sample was related to the high percentage of health profession students who completed the survey (40%,  $n = 307$ ). It would be expected that these students may have a greater interest in preventative health care and having health services on campus.

With respect to the survey instrument, since this was the first time the instrument had been used outside the pilot survey, as the researchers began to analyze data it became evident some questions should be rewritten or added. Questions asking about recent visits to a PCP should have included the reason for the visit to determine if visits were preventative or sick care visits. Also, a question to determine if students had delayed or not sought care due to cost or transportation would have benefitted the researcher's development of a proposal for the health clinic to administration. It would have been beneficial to ask students if they were willing to have an increase in student fees to cover the cost of the health center. Since this survey was

developed specifically for use at DSC, the result may not be generalizable to another student population. Finally, data from 75 students had to be excluded from analysis since those students did not provide consent. It is unclear why students completed the survey but did not check the consent. Some students may not have been 18 and when asked to verify they were 18 or over did not give consent. Since this was placed at the end of the survey, it could have been overlooked.

### **Research Implications**

This study has identified the need for more research on college campuses related to chronic physical health needs of students. The relationship between having primary care provider and preventative care in college students should be explored in more detail. Additional research investigating the impact of campus health services on primary and secondary prevention in college students needs to be done. More information is needed on the type of physical health needs students battle in order to provide appropriate health services. Also, additional studies related to evidence based student health programs are needed. Research on the utilization of a student health center as a clinical site for nursing and other health disciplines is needed, particularly the evaluation of a health center as a service learning site. Additionally, more information about the operation of a student health center is needed. No current information was available on starting a health center. Information on regulations, funding, staffing, and policies would be helpful to college interested in opening a health center.

### **Implications for Theory Building**

The Built Framework for Nursing Research provided the direction for the study. This framework outlines three levels of influence that impact the health of individuals and the community (De Guzman & Kulbok, 2012). The levels of influence are the regional, neighborhood, and individual and interact to either improve or undermine health. The key

concept of the Built Framework is walkability or how conducive the environment is to walking for leisure, recreation, or to access services (De Guzman & Kulbok, 2012). The framework allowed the researcher to identify the factors inside and outside the college community that are linked to the health of the individual and the community. Health disparities could also be identified using the framework. Prior to developing the DSC Student Health Needs survey, the researcher performed an assessment of the three levels of influence for DSC. In the regional-level of influence, the research identified several factors which lead to health disparities, the high unemployment rate in the area, shortage of primary care providers, and the high numbers of uninsured individuals in the community.

When assessing the neighborhood-level influences, a lack of public transportation, supermarkets within walking distance of the campus, and the lack of a health center were identified as health inequalities. Positive neighborhood level influences included the support of DSC administration for the project as well as the provision of the platform used to conduct the survey. The campus does have paved sidewalks, hiking trails, and a walking club for residence housing students which support walkability. For the past two years, DSC faculty and staff have organized a health fair to provide flu shots and other preventative health services.

Individual-level influences which contributed to health disparities included the lack of a full service cafeteria which could provide healthy food options and the need for the campus to start a food pantry for residence housing students who were without food. Other individual-level influences that could negatively impact student health were academic stress, financial stress, age, and living away from home. The Office of Campus Life sponsored several events that promote a sense of community, such as registered student organizations, socials, movie nights, and concerts.

The DSC Student Health Needs Survey assessed individual-level influences of health. Of primary concern was the high percentage of students that were overweight or obese. Health programming needs to be provided that encourages activity and health food choices. Also, working to better improve walkability on campus by offering more walking clubs and other recreational activities is needed. Having a campus that promotes walking as both transportation and recreation has been shown to improve health outcomes and reduce obesity (Saleens & Handy, 2008). Until a health center can be developed, providing health education programs on allergies, reproductive health, and continuing condom distribution would help meet the most pressing needs of the students.

As the college works toward opening a student health center, solidifying the support of key regional-level organizations will be needed. Approval from the Board of Regents will be necessary to obtain funding for student health services. Additionally, support from Hamilton Medical Center, Gordon Hospital, Whitfield County Health Department, and local medical providers will be needed. Neighborhood-level support that includes the DSC Foundation, faculty, and staff will also be needed.

The campus continues to work toward opening a full service cafeteria with extended menu offerings and operating hours. The campus has secured funding for renovation of the current student center to include a larger cafeteria. Renovations will begin in 2015.

### **Significance and Implications for DSC**

The primary purpose of this the translational project was to determine the student health problems and the needs for student health services at DSC. Using the survey results, a health fair was held for the DSC students, faculty, and staff. The health fair was an interdisciplinary collaboration between the School of Health Profession faculty, Office of Student Life, and

community health partners. Students from Health Professions, supervised by faculty, provided several screening and education services. Both LPN and RN students provided blood pressure screening, blood glucose monitoring, and nutritional counselling. Social work students provided screening for intimate partner violence and education on intimate partner violence. Respiratory therapy students provided information on smoking cessation which was reinforced by interactive smoking lungs. Physical Education Staff provided AED training. The Campus Wellness Committee had an interactive booth that promoted fun, physical activity as well as BMI screening. Online depression screening was provided through counselling services. Community partners offered flu vaccines, massage therapy, and vision screening. Other community partner booths included information on allergy treatment, STI screening, contraception, and chiropractic care. This event was well attended with about 300 students participating.

The researcher will use the results of the survey to develop a proposal for a student health clinic for the administration at DSC. Sections of the proposal will include an operating budget, physical resources already on campus, staffing using Health Professions faculty, and equipment and supplies that will need to be purchased. In addition, administrative needs of the center, such as a medical director, malpractice insurance, and regulatory issues will be included. Proposed hours of operation and staffing will be submitted.

The findings of this project have provided direction for the Wellness Committee with health promotion program planning for the campus. The prevalence of overweight and obese patients demonstrated the need for nutrition and physical activity programming for the campus. The committee is currently working on developing these programs. Additionally, programs on reproductive health and safe sex practices will be developed in 2015.

This study also demonstrated the need for an additional mental health counsellor at DSC. Over one-third of students reported a history of mental health conditions. Considering this is probably an under representation of the true prevalence on campus, one counsellor is not adequate to meet the needs of this student population. There is currently a six week waiting period for new student appointments with the mental health counsellor (T. McKie-Voerste, personal communication, September 9, 2014). A request for an additional counsellor has previously been rejected by the Board of Regents. The results of this study can be used to demonstrate the need for an additional counsellor.

The study has shown that students need access to a health center on campus. Since 25% of students have no insurance and 30% do not have a PCP, having a student health center will provide access to care to these groups of student who cannot easily access care in the community. Both chronic and acute services are needed. This would include screening for risk factors for metabolic syndrome, which would include hypertension, BMI, and diabetes. Since allergies are a common medical need on campus, providing health programming on allergy triggers and the management of allergies is needed. Acute management of UTIs and URIs is also needed based on the numbers of students ( $n = 348$ ) would have sought care for these illness in the past 18 months. Reproductive health services are needed as 100% of women and 67% of men requested these services.

### **Next Steps in the Clinic Development**

The researcher has met with student health clinic directors from other USG institutions to determine the steps in opening a clinic on campus. The researcher has had input into the design of the School of Health Professions building and a designated space for the student health center has been included in the plans. The researcher has worked with the dean of the School of Health



Professions to identify equipment currently available on campus which can be relocated to the clinic space will be made. A preliminary budget for remaining supplies and for the operation of the Student Health Clinic has been started. The researcher has obtained one grant from the Walmart Foundation for blood pressure monitors for the health center in the amount of \$2500.00. The main researcher is now an active member in the American College Health Association which will allow her to apply for grants during the 2015-2016 grant cycle. Since both the president and vice president of academic affairs are retiring in December, a formal proposal for the health center will be presented to the new administration in 2015.

An online interactive health promotion and education program is being investigated to provide additional resources for students until the health center is opened. This program will provide students with resources on needs identified by the project, such as alcohol and other drugs, mental health, sexual health, general health, and nutrition.

### **Dissemination**

Preliminary findings from the DSC Student Health Needs Survey have been presented by the researcher to the DSC Foundation and the School of Health Professions Departmental meeting. These presentations discussed the need for the center as well as the student support for the center. Both groups were receptive and voiced support of the project and the desire to open a health center on campus. Final results will be presented at the School of Health Professions Departmental meeting in December 2014.

Working with the Vice President of Student and Enrollment Services, the researcher will seek to develop community and campus support for the health center. Final results of the project will be presented to DSC administration and the SGA. A presentation will be given at the Spring 2015 faculty meeting. The researcher will also schedule meetings with administrators of

Hamilton Healthcare Systems, Adventist Health System, and Northwest Georgia District Health Office. The meetings will be to discuss the survey results and seek community partnerships that would serve as a referral network for the health center and help to identify a medical director.

The Northwest Georgia Healthcare Alliance will also be contacted. This organization is comprised of health care and community agencies and could provide additional resources as well as to help enlist community support for the project. If requested by administration, survey results will also be presented to the Board of Regents to demonstrate a need and to request funding for a health center at DSC.

The researcher presented a poster entitled “Evaluating Student Health Needs at a Community College” at the National Nurse Practitioner Symposium in July 2014. The survey tool received positive feedback and was asked to present the full survey results at the 2015 conference. She has also been selected to present a poster which includes the survey results at the GNLC Doctoral Symposium in November 2014. The researcher has begun work on an abstract to be a presenter at the Southern College Health Association Meeting in 2015.

The researcher has developed a guideline for conducting a student health survey and a needs assessment on college campuses (Appendix 2). After graduation, she will publish this as an online resource for community colleges interested in conducting a student health survey. She has begun writing an article on the translational project to be submitted to the American Journal of College Health in 2015. The researcher will continue to work to secure funding and support for the student health center applying for a grant from the American College Health Association in 2015.

### Conclusions

This translational project adds to the body of literature on the acute physical and mental health needs of students on a college campus. More importantly, the study adds to the limited data on chronic medical health needs in college students. Data on chronic health needs has previously been reported as aggregate data for the 18-29 year old demographic (Collins et al., 2012). The findings are consistent with other information in the literature that young adults have chronic medical conditions similar to older adults. This project provides new information on the types and percentages of chronic health needs for college students.

Several key findings from the study demonstrate the need for college health services at DSC in order to impact the future health of students. Addressing health needs while students are in college has a higher likelihood of motivating changes in health behaviors than later in adulthood (Unwin, Goode, Reame, & Quinlan, 2013). Most students (63%, n= 480) had a least one chronic mental or physical health need. While almost 25% (n=137) had three or more chronic health needs. Consistent with the literature, increasing age and weight was found to be significantly associated with increased numbers of acute and chronic medical needs (CDC, 2013a; CDC, 2014).

The study found that despite the enactment of the Affordable Care Act, 25% (n=185) of students who completed the student health needs assessment did not have medical insurance. These students were less likely to have had recent medical care. Students identified management of acute health issues, such as influenza, strep throat, and upper respiratory infections as the most needed services on the campus. Most importantly for the college, the study demonstrated that students at DSC not only had a strong desire for a student health center but would be likely to use the services offered at the center.

## References

- Agency for Healthcare Research and Quality. (2012). *Healthy men*. Retrieved from <http://www.ahrq.gov/patients-consumers/patient-involvement/healthy-men/index.html>
- American College Health Association (2013a). *Generalizability, Reliability, and Validity Analysis*. Retrieved from website: <http://www.acha-ncha.org/grvanalysis.html>
- American College Health Association. (2013b). *National college health assessment, Fall 2012*. Retrieved from website: <http://www.acha-ncha.org/>
- American College of Nurse Midwives (2013). Contraception & family planning. Retrieved from <http://ourmomentoftruth.midwife.org/OMOT-Contraception-and-Family-Planning>
- American Psychiatric Association. (2014.). *Hispanic-Latino mental health*. Retrieved from <http://www.psychiatry.org/latinos>
- Anderson, M. L., Dobkin, C., & Gross, T. (2013). The effect of health insurance on emergency department visits: Evidence from age-based eligibility threshold. *The Journal of Economics and Statistics*. Retrieved on September 14, 2013 from <http://are.berkeley.edu/~mlanderson/pdf/Anderson%20Dobkin%20Gross%202012a.pdf>
- Asthma & Allergy Foundation of America (n.d.) *Allergies*. Retrieved on October 20, 2014 from: <http://www.aafa.org/>
- Berke, E. M., Koepsell, T. D., Moudon, A., Hoskins, R. E., & Larson, E. B. (2007). Association of the Built Environment with Physical Activity and Obesity in Older Persons. *American Journal of Public Health, 97*(3), 486-492. doi:10.2105/AJPH.2006.085837
- Bond, T. G., & Fox, C. M. (2001). *Applying the Rasch model: Fundamental measurement in the human sciences*. (p.66). [EBSCOhost eBook version].

- Boggs, G. & Duncan, M. E. (2014). *Improving college access and success by confronting unintended pregnancy*. Leadership Briefs, 27 (2), Retrieved from <http://www.league.org/blog/post.cfm/improving-college-access-and-success-by-confronting-unplanned-pregnancy>
- Bryant, K. D. (2009). Contraceptive use and attitudes among female college students. *ABNF Journal*, 20(1), 12-16.
- Butler, S. M., Black, D. R., & Avery, G. (2012, November 2). Emergency contraceptive pill, contraceptive, & sexually transmitted infection services among U. S. college health centers. *Electronic Journal of Human Sexuality*, 15. Retrieved from <http://www.ejhs.org/volume15/Health.htm>
- Butler, S. M., Black, D. R., Blue, C. L., & Gretebeck, R. J. (2004). Change in diet, physical activity, and body weight in female college freshman. *American Journal of Health Behaviors*, 28, 24-32.
- Butler, S. M., Black, D. R., & Coster, D. (2011, July 6). Condom and safer sex product availability among U. S. college health centers. *Electronic Journal of Human Sexuality*, 14. Retrieved from [www.ejhs.org](http://www.ejhs.org)
- Butler, S. M., Procopio, M., Ragan, K., Funke, B., & Black, D. R. (2014, March 26). Assessment of university condom distribution programs: Results of a national survey. *Electronic Journal of Human Sexuality*, 14. Retrieved from [www.ejhs.org](http://www.ejhs.org)
- Butler, S. M., Ragan, K., Black, D. R., & Funke, B. (2014, October 21). Theoretical assessment of university condom distributions programs: An institutional perspective. *Electronic Journal of Human Sexuality*, 14. Retrieved from [www.ejhs.org](http://www.ejhs.org)

- Casas, R. (2012). Social cohesion in distributive policies and the role of knowledge. *Science & Public Policy (SPP)*, 39(5), 562-569. doi:10.1093/scipol/scs069
- Centers for Disease Control and Prevention. (2013a). *Chronic disease prevention and health promotion*. Retrieved from National Center for Chronic Disease Prevention and Promotion Website: <http://www.cdc.gov/chronicdisease/>
- Centers for Disease Control (2013b). *Percentage of young adults aged 19–25, by health insurance coverage status at time of interview and 6-month interval: United States, January 2009- June 2012*. Retrieved from:  
[http://www.cdc.gov/nchs/health\\_policy/coverage\\_young\\_adults\\_201306.htm#table1](http://www.cdc.gov/nchs/health_policy/coverage_young_adults_201306.htm#table1)
- Centers for Disease Control and Prevention. (2014). *Overweight and obesity*. Retrieved from <http://www.cdc.gov/obesity/index.html>
- Centers for Medicare and Medicaid Services. (n.d.). *Young adults & the affordable care act: Protecting young adults & eliminating burdens on families & businesses*. Retrieved from [http://www.cms.gov/CCIIO/Resources/Files/adult\\_child\\_fact\\_sheet.html](http://www.cms.gov/CCIIO/Resources/Files/adult_child_fact_sheet.html)
- Chiauzzi, E., Donovan, E., Black, R., Cooney, E., Buechner, A., & Wood, M. (2011). A Survey of 100 Community Colleges on Student Substance Use, Programming, and Collaborations. *Journal of American College Health*, 59(6), 563-573.  
doi:10.1080/07448481.2010.534214
- Chow, M. Y., Morrow, A. M., Booy, R., & Leask, J. (2013). Impact of children's influenza-like illnesses on parental quality of life: A qualitative study. *Journal of Paediatrics and Child Health*, 49, 664-670. <http://dx.doi.org/doi:10.1111/jpc.12261>

- Collins, S. R., Robertson, R., Garber, T., & Doty, M. M. (2012). *Young, uninsured and in debt: Why young adults lack health insurance and how the affordable care act is helping*. (Publication 1604). Retrieved from The Commonwealth Fund website:  
[http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2012/Jun/1604\\_collins\\_young\\_uninsured\\_in\\_debt\\_v4.pdf](http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2012/Jun/1604_collins_young_uninsured_in_debt_v4.pdf)
- Conrad, J. M. (1999). *Resource Economics*. New York: Cambridge University Press.
- Corrigan, P. W., Kosyluk, K. A., & Rüsck, N. (2013). Reducing self-stigma by coming out proud. *American Journal of Public Health, 103*(5), 794-800.
- Cosco, N. G., Moore, R. C., & Smith, W. R. (2014). Childcare Outdoor Renovation as a Built Environment Health Promotion Strategy: Evaluating the Preventing Obesity by Design Intervention. *American Journal of Health Promotion, S27-S32*.
- Crihfield, C. & Grace, T.W. (2011). The history of college health nursing. *Journal of American College Health, 59*(60), 470-6.
- Dallack, L. C. & Kjelland, E. M. (2012). The prevalence of metabolic syndrome and metabolic syndrome risk factors in college-aged students. *American Journal of Health Promotion, 27* (1), 37-42.
- Dalton State College, (2014). Quick facts. Retrieved from [www.daltonstate.edu](http://www.daltonstate.edu)
- Dalton-Whitfield Chamber of Commerce. (n.d.). *Community*. Retrieved from <http://www.daltonchamber.org/> <http://www.daltonchamber.org/>
- de Chesney, M. & Anderson, B. A. (2012). *Caring for the vulnerable: Perspectives in nursing theory, practice, and research*. Burlington, MA: Jones & Bartlett Learning.

- de Guzman, P. B. & Kulbok, P. A. (2012). Changing health outcomes of vulnerable population through nursing's influence on neighborhood build environment: A framework for nursing research. *Journal of Nursing Scholarship*, 44(4), 341-348.
- DeMartini, K. S. & Carey, K. B. (2009). Correlates of AUDIT risk status for male and female college students. *Journal of American College Health*, 58(3), 233-9.
- DeSantis, A. D., Webb, E. M., & Noar, S. M. (2008). Illicit use of prescription ADHD medications on a college campus: A multimethodological approach. *Journal of American College Health*, 57(3), 315-324.
- Dunne, E. F., Unger, E. R., Sternberg, M., McQuillan, G., Swan, D. C., Patel, S. S., Markowitz, L. E. (2007). Prevalence of HPV infections among females in the United States. *Journal of the American Medical Association*, 297 (8), 813-9.
- Economic Resources (n.d.). Retrieved from [http://economicsconcepts.com/the\\_economic\\_resources.htm](http://economicsconcepts.com/the_economic_resources.htm)
- Edington, L. A. (2012). Improving access, patient flow, and health triage in a college health setting: How we have improved. *ViewPoint*, 34(6), 6-11.
- Eisenberg, M. E., Garcia, C. M., Frerich, E. A., Lechner, K. E., & Lust, K. A. (2012). Through the eyes of the student: What college students look for, find, and think about sexual health resources on campus. *Sexuality Research and Social Policy Journal of NRSC*, 9, 306-316.
- Georgia Department of Labor. (n.d.). *Learn about education and training*. Retrieved from [http://www.dol.state.ga.us/js/education\\_and\\_training.htm](http://www.dol.state.ga.us/js/education_and_training.htm)
- Georgia Department of Labor (2013). *Unemployment rate in Northwest Georgia*. Retrieved from [http://www.dol.state.ga.us/pdf/pr/lf\\_georgia.pdf](http://www.dol.state.ga.us/pdf/pr/lf_georgia.pdf)



Go, A. S., Mozaffarian, D., Roger, V. L., Benjamin, E. J., Berry, J. D., Borden, W. B. ... Turner, M. B. (2013). Heart disease and stroke statistics-2013. *Circulation*, *127*, e6-e245.

<http://dx.doi.org/10.1161/CIR.0b013e31828124ad>

Gordon Hospital (n.d.). *About Us*. Retrieved from <http://www.gordonhospital.com/>

Gow, R.W., Trace, S.E., & Mazzeo, S.E. (2012). Preventing weight gain in first year college students: An online intervention to prevent the “freshman fifteen”. *Eating Behaviors*, *11* (1), 33-39.

Guo, J. J., Wade, T. J., Pan, W., & Keller, K. N. (2010). School-based health centers: Cost-benefit analysis and impact on health care disparities. *American Journal of Public Health*, *100*(9), 1617-23.

Gray, R. H. (2012). *Sexual Assault Statistics*. Retrieved from

<http://www.campussafetymagazine.com/article/Sexual-Assault-Statistics-and-Myths>

Griffin, L. L., Green, J. J., & Jefcoat, C. (2010, October). *Survey data gives voice to students in creating a healthy campus/community culture*. Paper presented at the Consortium for Research on Educational Accountability Conference, Williamsburg, VA. Paper retrieved from <http://eric.ed.gov/?id=ED512803>

Griffiths, H. (2005). Collaborating for healthy campuses. *Nursing BC*, *37*(1), 12-6. Retrieved from <http://search.proquest.com/docview/215210446?accountid=11078>

Grove, S. K., Burns, N., & Gray, J. R. (2013). *The practice of nursing research: Appraisal, synthesis, and generation of evidence* (7<sup>th</sup> ed.). St. Louis: Elsevier.

Hamilton Healthcare System (n.d.). *About the healthcare system*. Retrieved from

<http://www.hamiltonhealth.com/oth/Page.asp?PageID=OTH000783>

Health and Human Services (2014). *HHS initiative on multiple medical conditions*. Retrieved from <http://www.hhs.gov/ash/initiatives/mcc>

Health Center. (n.d.). Retrieved from <http://www2.gordonstate.edu/healthcenter>

Horrocks, S., Anderson, E., & Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal*, 324, 819-823.

Howard, D. E., Greenberg, J. S., Murray, C., & Sawyer, R. (2002). The Role of Student Health Centers in Community-University Collaborations. *Journal of American College Health*, 51(3), 133-137.

Hurley, J. L., Turner, H. S. & Floyd, D. L. (2000). Development of a health service at a rural community college in Appalachia. *Journal of American College Health*. 48 (4), 181-5.

Jackson, K. D., Howie, L. D., & Akinbami, L. J. (2013). *Trends in allergic conditions among children, United States, 1997-2011*. (NCHS data brief #21). Retrieved from National Center for Health Statistics: <http://www.cdc.gov/nchs/data/databriefs/db121.htm>

Kellar, S. P. & Kelvin, E. A. (2013). *Munro's statistical methods for healthcare research* (6<sup>th</sup> ed.). Philadelphia: Wolters Kluwer Health.

Koumans, E. H., Sternberg, M. R., Motamed, C., Kohl, K., Schillinger, J. A., & Markowitz, L. E. (2005). Sexually Transmitted Disease Services at US Colleges and Universities. *Journal Of American College Health*, 53, 211-217.

Leslie, E. Coffee, N., Frank, I. D., Bauman, A., & Hugo, G. (2007). Walkability of local communities: Using geographical information systems to objectively assess relevant environmental attributes. *Health & Peace* 13(1), 111-122.

- Malhotra, R., Ostbye, T., Riley, C., & Finkelstein, E. (2013). Young adult weight trajectories through midlife by body mass category. *Obesity*, 21, 1923-1934. doi:10.1002/oby.20318
- Mello, B. J. (2011). Determining the need for a student health service center on a small liberal arts college campus. (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No.3491591).
- Miranda, M., Messer, L. C., & Kroeger, G. L. (2012). Associations between the Quality of the Residential Built Environment and Pregnancy Outcomes among Women in North Carolina. *Environmental Health Perspectives*, 120(3), 471-477. doi:10.1289/ehp.1103578
- Morrell, J.S., Lofgren, I. E., Burke, J. D., & Reilly, R. A. (2012). Metabolic syndrome, obesity, and related risk factors among college men and women. *Journal of American College Health*, 60 (1), 82-89.
- Moudan, A.V., Lee, C., Cheadle, A. D., Garvi, C., Johnson, D., Schmid, T. L. ... Lin, L. (2006). Operational definitions of walkable neighborhood: Theoretical and empirical insights. *Journal of Physical Activity*, 3 (1 Suppl.) S99-S117.
- National Heart Lung & Blood Institute. (2011). *What is metabolic syndrome?* Retrieved from <http://www.nhlbi.nih.gov/health/health-topics/topics/ms/names.html>
- National Institute of Alcoholism and Alcohol Abuse. (2013). *Alcohol facts and statistics*. Retrieved October 16, 2014 from <http://pubs.niaaa.nih.gov/publications/AlcoholFacts&Stats/AlcoholFacts&Stats.htm>
- National Institute on Alcoholism and Alcohol Abuse. (2005). *High risk drinking in college: What we know and what we need to know*. Retrieved from [http://www.collegedrinkingprevention.gov/niaaacollegematerials/panel01/highrisk\\_04.aspx](http://www.collegedrinkingprevention.gov/niaaacollegematerials/panel01/highrisk_04.aspx)

- National Institutes of Health (2013). *Men and depression*. Retrieved from <http://www.nimh.nih.gov/health/publications/men-and-depression/index.shtml>
- Nauright, L.P. & Wilson, A. (2012). Preparing nursing professionals to be advocates: Service learning. In M. de Chesney, M. & B. A. Anderson (Eds.). *Caring for the vulnerable: Perspectives in nursing theory, practice, and research* (pp. 465-474). Burlington, MA: Jones & Bartlett Learning.
- Newhouse, R. P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., & ... Weiner, J. P. (2011). Advanced practice nurse outcomes 1990-2008: A systematic review. *Nursing Economic\$, 29(5)*, 230-251
- Obesity. (n.d.). Retrieved from [http://www.medicinenet.com/obesity\\_weight\\_loss/article.htm](http://www.medicinenet.com/obesity_weight_loss/article.htm)
- Olson, K., & Autio, L. (1999). Assessing and planning primary care at college and university health centers. *Holistic Nursing Practice, 13(4)*, 1-8.
- Ottenritter, N. (2002). National Study on Community College Health. *American Association of Community Colleges Research Brief*. Annapolis Junction, Maryland: Community College Press.
- Partnership to Fight Chronic Disease. (n.d.). The growing crisis of chronic disease in America. Retrieved from [http://www.fightchronicdisease.org/sites/fightchronicdisease.org/files/docs/GrowingCrisisofChronicDiseaseintheUSfactsheet\\_81009.pdf](http://www.fightchronicdisease.org/sites/fightchronicdisease.org/files/docs/GrowingCrisisofChronicDiseaseintheUSfactsheet_81009.pdf)
- Prescott, H. (2011). Student bodies, past and present. *Journal of American College Health, 59(6)*, 464-469.
- Pucci, A., & Finer, N. (2011, June 11). Acute medical aspects related to obesity. *Endocrine Society*. <http://dx.doi.org/DOI: http://dx.doi.org/10.1210/EME.9781936704811.ch39>

Runyon, M. (2012). Nontraditional students account for up to 40% of college population.

*University Chronicle*. Retrieved on November 24, 2013 from:

<http://www.universitychronicle.net/index.php/2012/03/11/non-traditional-student-population-results>.

Saleens, B. E., & Handy, S. L. (2008). Built environment correlates of walking: A review.

*Medicine & Science & Sports & Medicine*, 40, S550-S566.

Sander, L. (2013). Juggling demands, college health centers strive for the long view. *Chronicle of Higher Education*, 59 (8), A10-A11.

Sandfort, J. R. & Pleasant, A. (2009). Knowledge, attitudes, and informational behaviors of college students in regard to the human papillomavirus. *Journal of American College Health*, 58 (2), 141-8.

Sailors, M. H., Jackson, A. S., McFarlin, B. K., Turpin, I., Ellis, K. J., Foreyt, J. P. ... Bray, M. S. (2010). Exposing college students to exercise: The training and interventions and genetics of exercise response (TIGER) study. *Journal of American College Health*, 59, 13-20.

Schulz, A. J. & Northridge, M. E. (2004). Social determinants of health: Implications for environmental health promotion. *Health Education & Behavior*, 31(4), 455-471, 531.

Schwitzer, A. M. (2009). Adapting to students' social and health needs: suggested framework for building inclusive models of practice. *American Journal of College Health*, 58 (1), 5-10.

Singleton, E. K., Bienemy, C., Hutchinson, S. W., Dellinger, A., & Rami, J. S. (2011). A pilot study: A descriptive correlational study of factors associated with weight in college nursing students. *Association of Black Nursing Faculty Journal*, 22(4), 89-95.

Standish, M. B., & Ross, R. K. (2013). Transforming Communities for Health. *National Civic Review*, 102(4), 31-33. doi:10.1002/ncr.21149

Student Health Center. (n.d.). Retrieved from <http://www.darton.edu/current/HealthCenter/>

Topp, R., Edward, J. S., Ridner, S. L., Jacks, D. E., Newton, K., Keiffner, P., ... Conte, K. P.

(2011). Fit into college: A program to improve physical activity and dietary intake lifestyles among college students [*Recreational Sports Journal*]. , 35, 69-78.

Turner, H. S. & Hurley, J. L. (2002). *The History and Practice of College Health*. Lexington, KY: The University of Kentucky Press.

Turner, R., Testa, M., Hayes, J., & Su, M. (2013). Validation of the allergic rhinitis treatment satisfaction and preference scale. *Allergy and Asthma Proceedings: The Official Journal of Regional And State Allergy Societies*, 34(6), 551-557. doi:10.2500/aap.201. 34.3715

University System of Georgia (2013). *Student Health Insurance Program*. Retrieved from

[http://www.usg.edu/student\\_affairs/students/student\\_health\\_insurance\\_program\\_SHIP](http://www.usg.edu/student_affairs/students/student_health_insurance_program_SHIP)

University System of Georgia. (2014). *Semester enrollment report: Spring 2014*. Retrieved from

[http://www.usg.edu/research/documents/enrollment\\_reports/SER\\_Spring\\_2014\\_Final.pdf](http://www.usg.edu/research/documents/enrollment_reports/SER_Spring_2014_Final.pdf)

Unwin, B. K., Goode, J., Reame, B. V., & Quinlan, J. (2013). Care of the college student.

*American Family Physician*, 88(596-604), 596-604.

Vella-Zarb, R. A., & Elgar, F. J. (2009). The 'freshman 5': A meta-analysis of weight gain in the freshman year of college. *Journal of American College Health*, 58(2), 161-166.

Walters, S. T., & Neighbors, C. (2011). College prevention: A view of present and future web-based approaches. *Alcohol Research and Health*, 34, 222-224.

Wang, T. J. & Vasan, R. S. (2005). Epidemiology of uncontrolled hypertension. *Circulation*, 112, 1151-1162.

Wetzel, W. (2010). Campus and community: health care for university students and staff.

*Beginnings*, 16-18.

What is planning? (n.d.). Retrieved from <http://planning.org/aboutplanning/whatisplanning.html>.

W. K. Kellogg Foundation. (2006). *W. K. Kellogg Foundation logic model development guide*.

Retrieved from <http://www.wkcf.org/resource>

Woolard, D. & Donohue, W. R. (1995). Student health services at four rural colleges:

Implications for healthcare reform. *Journal of American College Health*, 44 (1), 25-34.

World Health Association. (2014). BMI classification. Retrieved from

[http://apps.who.int/bmi/index.jsp?introPage=intro\\_3.html](http://apps.who.int/bmi/index.jsp?introPage=intro_3.html)

Yorgason, J. B., Linville, D., Zitzman, B. (2008). Mental health among college students: Do

those who need services know about and use them? *Journal of American College Health*, 57(2), 173-181.

Zulig, K.J. (2005). Using CDC's health-related quality of life scale on a college campus.

*American Journal of Health Behavior*, 29, 569-78

## Appendix A

**DSC Student Health Needs Survey**

*Tell us a little about yourself:*

1. *How would you rate your overall health?*
  - a) **Excellent**
  - b) **Very good**
  - c) **Good**
  - d) **Fair**
  - e) **Poor**
  
2. *What is your age in years?* \_\_\_\_\_
  
3. *What is your gender?*
  - Male**
  - a) **Female**
  
4. *What is your year in school?*
  - a) **Freshman (0-29 completed credit hours)**
  - b) **Sophomore (30-59 completed credit hours)**
  - c) **Junior (60-89 completed credit hours)**
  - d) **Senior ( $\geq 90$  completed credit hours)**
  
5. *What is your enrollment status?*
  - a) **Full time**
  - b) **Part time**
  
6. *What is your major?* \_\_\_\_\_
  
7. *Are you a student athlete?*
  - a) **Yes**
  - b) **No**
  
8. *What is your marital status?*
  - a) **Single**
  - b) **Married**
  - c) **Separated**
  - d) **Divorced**



9. *How do you describe yourself?*
- a) **White/Caucasian**
  - b) **Black/African American**
  - c) **Hispanic/Latino/a**
  - d) **Asian**
  - e) **Other**
10. *Where do you currently live?*
- a) **Campus housing**
  - b) **Living with parent(s) or spouse**
  - c) **Living with non-relative(s)**
  - d) **Living alone**
  - e) **Living alone with children**
  - f) **Currently do not have a home**
11. *Do you have medical insurance coverage?*
- a) **Own policy-private or thru employer**
  - b) **Parent's plan**
  - c) **Spouse's plan**
  - d) **Government plan (Medicare, Medicaid, ChampUS, Champ/VA, PeachCare)**
  - e) **No medical plan**
12. *Do you work?*
- a) **Full time 32+ hours/week during the school year**
  - b) **Part time  $\geq$  20 hours/ week but < 32 hours/week during the school year**
  - c) **Part time < 20 hours/ week during the school year**
  - d) **I work summers only**
  - e) **I don't work at any time**
13. *Where do you work?*
- a) **I work off campus**
  - b) **I participate in a work/study program on campus**
14. *Do you receive financial aid?*
- a) **Georgia Hope Grant or Scholarship**
  - b) **Pell Grant**
  - c) **Student Loan**
  - d) **DSC Foundation Scholarship**
  - e) **Other type of scholarship**

15. What is your approximate weight in pounds? \_\_\_\_\_

16. What is your approximate height? \_\_\_\_\_

**Now tell us about your health:**

17. Have you ever been diagnosed with any of the following medical conditions?

Disease/Condition	Yes	No
a) Allergies		
b) Anxiety		
c) Asthma		
d) ADD/ADHD		
e) Bi-polar disorder		
f) Bronchitis		
g) Chlamydia/Gonorrhea/Genital Warts/ HPV		
h) Depression		
i) Diabetes		
j) Hepatitis B or C		
k) HIV		
l) High blood pressure		
m) High cholesterol		
n) Irritable bowel syndrome/ Crohn's disease		
o) Migraine Headache		
p) Tuberculosis		

18. Have you ever been diagnosed with cancer?                      Yes                      No

**If yes, which type?**

19. *In the past 18 months have you been treated by a health professional for any of the following?*

Disease/Condition	Yes	No
a) Allergies		
b) Anxiety		
c) Asthma		
d) Bi-polar disorder		
e) Bronchitis		
f) Chlamydia/Gonorrhea/Genital Warts, HPV		
g) Depression		
h) Diabetes		
i) Hepatitis B or C		
j) HIV		
k) High blood pressure		
l) High cholesterol		
m) Irritable bowel syndrome/ Crohn's disease		
n) Migraine Headache		
o) Tuberculosis		
p) Influenza		
q) Ear or sinus infection		
r) Strep throat		
s) Sprain/ strain/broken bone		
t) Received a prescription for birth control or were seen for family planning services?		

20. *In the past 30 days, have you done any of the following?*                      Yes                      No

- a) **Smoked cigarettes or used smokeless tobacco?**
- b) **Smoked marijuana, pot, weed**
- c) **Used meth , ice, crank**
- d) **Used cocaine, crack, rock**
- e) **Used any other illegal drugs**
- f) **Taken someone else's prescription medications for ADHD, anxiety, or depression**

**Males:**

**Yes**

**No**

21. *In the past seven days, have you drank:*

- a) **5 or more alcoholic beverages (beer, wine, liquor) in one day?**
- b) **14 or more drinks in a week?**

**Females:**

22. *In the past seven days, have you drank:*

- a) **4 or more alcoholic beverages (beer, wine, liquor) in one day?**
- b) **7 or more drinks in a week?**

23. *Where were you last seen for medical care?*

- a) **Primary care office**
- b) **Walk-in clinic**
- c) **Emergency room**
- d) **Other**

24. *Do you have a primary care provider (PCP) that you see regularly?*

- a) **I have seen my PCP in the past 18 months**
- c) **I have not seen my PCP in the past 18 months**
- d) **I do not have a PCP**

25. *Where is your primary care provider located?*

- a) **Dalton or surrounding counties**
- b) **More than 30 miles from campus**

26. *Do you think a student health center is needed at DSC?*

- a) **Yes**
- b) **No**

27. *How likely would you use a student health center on campus?*

- a) **Extremely likely**
- b) **Likely**
- c) **I would only use the student health center if I could not get an appointment or transportation elsewhere**
- d) **I would never use the student health center**

28. *How many times a semester would you expect to use the student health center?*

- a) **none**
- b) **1-2**
- c) **3 or more**

29. *What services do you think should be available at a student health center? Select all that apply.*

- a. **treatment for minor illnesses such as colds, flu, strep throat, urinary tract infections**
- b. **monitoring chronic conditions such as diabetes, hypertension**
- c. **birth control and treatment for sexually transmitted infections**
- d. **flu vaccines**
- e. **blood pressure checks**
- f. **nutrition counselling**
- g. **physical examinations**
- h. **assessment and treatment of minor injuries, including minor cuts and scrapes, minor sprains**
- i. **mental health/counselling**

## Appendix B

**Guidelines to Establishing Student Health Services****Step 1: Assess the need for student health services**

- Student health needs assessment can be conducted electronically or on paper.
- An electronic format allows for easier data analysis.
- Even small campuses have an electronic survey platform that can be adapted to offer a health survey.
- The following categories can be included in the survey:
  - Demographics
  - Insurance status
  - Past Health Needs
  - Current Health Needs
  - Current source of medical care
  - Student interest in health center
  - Potential Usage of student health center
  - Services students desire
  - Services based on student survey
  - Students preferred payment arrangement

**Step 2: Assess the resources on campus**

- Does administration support the project?
  - Identify the key stakeholders
- What resources can be relocated?
  - Medical equipment
  - Office equipment
- What space is available?
  - How many and what type of rooms needed?
    - Exam rooms
    - Waiting rooms/reception
    - Restrooms/ lab space
  - Are any renovations needed?
- What personnel resources are available on campus?
  - Health Professions Faculty
  - Health Professions Students
  - Mental Health Counsellors
  - School of Business Faculty
  - College Business Office

**Step 3: Determine staffing needs/ regulatory issues**

- What type of primary care providers will be employed?
  - Physicians/Nurse Practitioners/ Physician Assistants
  - Scope of practice for providers
- What other staff are needed?
  - Medical Director/Clinic Management
  - RNs/ LPNs/ Mas
  - Receptionist
- Is malpractice insurance needed or will clinic operate under university's blanket policy?
- What job descriptions are needed?
- What Protocols or Practice Agreements are needed?
- Is University System Approval for funding?
- Is an Advisory Board needed?
- What is the mission of the clinic?

**Step 4: Other considerations**

- What money or funding is available?
  - Grants
  - Charities
- How will the clinical recoup operating costs?
  - Student fees
  - Fee per service
  - Insurance billing
  - Combination
- Will the clinic be self-sufficient?
- What capital items need to be purchased?
- What disposable resources need to be purchased?
- What are the most important services to offer?
  - Based on student needs assessment
  - Potential cost of services
  - Services that could be offered with minimal startup costs
- How many hours will the clinic operate each week?
- What is the timeline for opening the clinic?
- Could the clinic partnership with a local healthcare facility?
- Are there organizations which will provide resources for the health center?
  - ACHA
  - University Health Center Alliance