

The Health Assessment Needs of Kansas State Students Survey

by

Mayrena Isamar Hernandez

B.S., The University of Texas at Arlington, 2016

A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

Department of Food, Nutrition, Dietetics and Health
College of Human Ecology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2018

Approved by:

Major Professor
Mark Haub, Ph.D

Copyright

© Mayrena Hernandez 2018.

Abstract

INTRODUCTION: College represents a major stepping stone toward independence for a number of students. This transition from high school to college life is a critical period for development of a healthy lifestyle. Health promotion departments at universities are uniquely positioned to implement a comprehensive strategy for increasing physical activity, and advocate for healthful eating. The Kansas State University (KSU) Health Promotion team at Lafene Health Center helps students enhance their health behaviors, and they developed a questionnaire to better understand the health issues students face. Their questionnaire, The Health Assessment Needs of Kansas State Students (THANKS), was created to better understand the barriers to a healthful lifestyle for students at KSU. The purpose of the current study was to assess the THANKS (questionnaire) used in the Fall 2016 and Fall 2017 semesters within the student population at KSU.

METHODS: The Fall 2016 and Fall 2017 THANKS questionnaires were analyzed for this investigation. The THANKS questionnaires focused on holistic aspects of health, including: physical activity, hydration, nutrition, tobacco use, mental health, social determinants of health, general health, and demographics. For the purpose of assessing this questionnaire, section A: Physical Activity (PA), section B: Nutrition, and section H: Demographics were analyzed. The following analyses were performed: readability analysis; the Flesch Reading Ease Score and Flesch Kincaid Grade Level score, descriptive statistics, reliability analysis; Cronbach's Alpha and Cronbach's Alpha if item deleted, and ANOVA.

RESULTS: Overall, women made up the majority of the sample size (66.7%). Age ranges for ≤ 18 yrs old for all academic classifications were 72.3% (freshman) and 3.4% (sophomore). 19-24 yrs old age category had 93.3% (sophomore), 92.6% (Junior), 87.1% (Senior), whereas, graduate or professional students had 39.8% as their highest for the category of 25 to 30 yr olds. The majority of freshman resided in campus residence halls (75.3%), whereas for all classes respectively resided off campus (52.1%, 71.6%, 83.1%, 83%). The sample was primarily Caucasian for all classes (sophomore- graduate or professional), respectively (83.4%, 83.2%, 85.8%, 87.6%, 65.9%). Reliability analysis showed a low Cronbach's Alpha for the PA section (0.58). For the nutrition section, frequency questions (0.61), and location of meals consumed had a high reliability (0.89). Flesch Reading Ease score of 70.3 indicated the THANKS survey is fairly easy to read. Flesch-Kincaid Grade Level score of 5.2 indicated the reader's age of fifth graders. All inter-item correlations for the frequency of PA and location of engagement in PA were below 0.15, ANOVA of general nutritious diet and consumption of p-values of SSB (0.001), Energy drinks (0.019), meals at home (0.007), meals off campus (0.000), meals at vending machine (0.031), glasses of water (0.001), participation in PA (0.000), frequency of moderate intensity (0.002), frequency of strength/resistance training (0.000) per week showed significance. ANOVA for participation in PA and of p-values SSB (0.001) per week and glasses of water per week (0.000) showed significance.

CONCLUSION: The THANKS survey shows promise for an adequate survey tool but with room for improvement. Health promotion department may need to improve the psychometric properties of the PA and nutrition sections of the survey in order to obtain meaningful survey results that may be used in translation to programming for improved health on campuses.

Table of Contents

List of Tables	vi
Acknowledgements	vii
Introduction	1
Physical Activity and Nutrition in College Students	2
Questionnaires, useful tools in health care	4
The Development of the Research Tool	7
Methods	9
The American College Health Association- National College Health Assessment	9
Variables	10
Physical Activity	10
Nutrition	11
Demographic Variables	13
Data Analysis	14
Results	15
Demographics	15
.....	16
Readability Analysis	17
Reliability Analysis	17
Compare Means	22
Discussion	26
Strengths of the survey	27
Limitations of the survey	28
Conclusions	29
References	31
Appendix A- Field Experience Report	34
List of Figures	38
Acknowledgments	39
Field Experience	40
Introduction	40

Background	43
Scope of Work	44
Learning Objectives	45
Activities Performed	47
Products Developed.....	51
<i>Fall 2017 Flu Campaign</i>	51
<i>The Health Assessment Needs of Kansas State Students Survey</i>	55
Alignment with Public Health Core Competencies.....	59
Conclusions	61
Appendix B- Thesis Defense Presentation Slides	62
Appendix C- THANKS Demographics Charts	73
Appendix D- THANKS Survey Section	78

List of Tables

Table 1: Descriptive Demographics THANKS Fall 2016 and 2017.....	16
Table 2. Reliability Analysis of Physical Activity and Nutrition Sections.....	18
Table 3. Inter-Item Correlation Matrix: Physical Activity.....	19
Table 4. Inter-Item Correlation Matrix: “How often do you consume the following?”.....	20
Table 5. Inter-Item Correlation Matrix: “Where do you get your meals during the week?”.....	20
Table 6. Compare Means of General Nutritious Diet and “How often do you consume the following?”.....	21
Table 7. Compare Means of General Nutritious Diet and “Where do you get your meals during the week?”.....	22
Table 8. Compare Means of General Nutritious Diet and Glasses of water per day.....	22
Table 9. Compare Means of General Nutritious Diet and Physical Activity.....	23
Table 10. Compare Means of Participation in Physical Activity and “How often do you consume the following?”.....	23
Table 11. Compare Means of Participation in Physical Activity and Glasses of water per day...	24
Table 12. Compare Means of Participation in Physical Activity and “Where do you get your meals during the week?”.....	24

Acknowledgements

The author would like to thank major advisor Mark Haub, PhD, Head of Department, Department of Food, Nutrition, Dietetics, and Health for his support on this project. Thank you for your guidance throughout this time at Kansas State University. This project has been valuable to my understanding on how research is a valuable asset in the health care profession.

Special thanks to Richard Rosenkranz, PhD, Associate Professor, Department of Food, Nutrition, Dietetics, and Health. Your guidance, patience and expertise regarding the statistics portion of this project have been the key to better understanding a survey research tool and the completion of this project. Thank you for all that you have done for the author and all that you do for Kansas State University. My education was enhanced by what you taught me in the classroom and outside the classroom for this project.

The author would like to thank the rest of her committee, Shawna Jordan and Sara Rosenkranz for being supportive and setting high standards on how to develop a good research question and project. You all as well have enhanced my education here at Kansas State University and have inspired me to pursue a PhD after my time here.

Family, friends, colleagues, athletes: thank you for your patience with my busy schedule as a graduate assistant athletic trainer and a master student. Your enduring patience, listening ears, sound advice are what got me through these two years of hardship and are the reason for my success and inspiration for this project.

Introduction

Entering college can be an exciting, yet stressful event for many young adults and adolescents. Typically in the United States, students enter college immediately after high school at ages 18 or 19 years of age (American College Health Association, 2011.) During this time, these young adults are faced with trying to adapt to changes in their academic workloads, social groups, support networks, and their environment. These changes form the newfound greater freedom obtained from leaving home, as well as new self-responsibility and control over their lifestyles than they have ever had before. According to Dinger and Waigandt(1997), this is an optimal transitional period of time to establish healthy lifestyle behaviors, but research has shown that globally many of these college students are engaging in various risky health behaviors (Dinger et al, 1997). Risky behaviors include alcohol use, tobacco use, physical inactivity, and unhealthy dietary practices. Other risky behaviors include ignoring preventative safety habits like wearing helmets, seat belts, and/or condoms which can all have long-term implications for their health (Center for Disease Control, 2016). Therefore, identifying factors that influence health protective behaviors in college students warrants further attention because these health behaviors are changing during transitional phase of college. Healthcare professionals and public health personnel play a vital role in developing health promotion and prevention programs, and would benefit from better understanding information regarding factors that influence positive health behaviors when developing or improving current health programs within the college student population.

Physical Activity and Nutrition in College Students

College students often fail to meet current physical activity and or dietary recommendations. (Centers for Disease Control 1997, Dinger &Waignandt 1997, Dinger 1999, Septoe et al. 2002.) Sedentary behavior is defined by “waking behavior with an energy expenditure of 1.5 metabolic equivalents (METs) or less while in a sitting or reclining position.” College students can often be found in a sedentary behavior because of classes or studying. (American College Health Association, 2011). Current recommendationsfor physical activity to combat sedentary behaviorfor adults include 150 minutes a week of moderate-intensity or 75 minutes a week of vigorous-intensity aerobic activity, or an equivalent combination of moderate and vigorous intensity aerobic activity. Aerobic activity for health benefits should be performed in episodes of at least 10 minutes and spread throughout the week, meaning that not all 150 minutes or 75 minutes should be completedin one day. For additional and more profound health benefits, the CDC suggests adults increase their aerobic physical activity to 300 minutes a week of moderate-intensity or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalence combination of moderate and vigorous intensity activity(Centers for Disease Control and Prevention, 2017). It is recommended that adults also do muscle strengthening activities that are moderate or high intensity and involve all major muscle groups on two or more days per week as these physical activities also provide additional health benefits. For children and adolescents, the CDC recommends 60 minutes or more of a physical activity daily(Centers for Disease Control and Prevention, 2017). Recommendations for aerobic activity are that most of the 60 or more minutes a day be either moderate- or vigorous-intensity aerobic physical activity, and include vigorous-intensity physical activity at least three days per week. Muscle strengthening is recommendedas part of the 60 minutes of daily physical activity on at least three

days of the week (Centers for Disease Control and Prevention, 2017). Also, included in their 60 or more minutes of daily physical activity for children and adolescents, bone-strengthening physical activity is recommended at least three days of the week. Given the guidelines from the CDC and the age ranges for guidelines, there is uncertainty for college students since there are the few freshmen who are starting college at less than 18 years of age.

Focusing on the United States, obesity in college-aged population has increased from 12% in 1991 to 36% in 2004. (Ogden et al 2006.) Only 45% of adults get the recommended 30 minutes of physical activity on five or more days per week and adolescents are similarly inactive (Zaza et al 2005.) The impact for this population is that 81-85% of adults continue the same physical activity patterns that they establish during their senior year of college (Sparling, 2003). Since an estimated 40-45% of college students engage in fitness activities regularly, ≥ 3 days per week. Fewer than $<40\%$ will be active as adults and where physical activity guidelines are not met (Sparling, 2003.)

In addition to trying to meet either criterion for physical activity, college students face many day-to-day challenges for staying healthy through diet. For example, college budgets can be limited, and there may be more access to fast food and snacks.. Another challenge in this transitional phase is that college students may need to learn how to cook so that they are less likely to go out to eat during the week. Consumption of fast food and food away from from locations is associated with a lower diet quality and obesity among adults. (Dinger, 1997). Included in these dietary struggles is the high intake of fast foods and other foods high in fat, low intake of fruits, vegetables and dairy as well as erratic eating behaviors such as meal skipping. A balanced diet can help increase students' energy levels, promote a better functioning immune system, improve their ability to cope with stress, and increase concentration and

performance in school (Steptoe 1996, Bauman 2012). The challenge of healthy eating is influenced by a variety of factors which include the following: time, availability of healthy options, friends' eating habits, and nutritional knowledge (Ogden et al, 2006). In the first 3-4 months of college, students gain an average of 1.5-6.8 pounds with the proportion of overweight or obese students as much as doubling by the end of the first semester (Stewart et al 2004). In the past 30 years, the prevalence of obesity among young adults more than doubled, according to the most recent National Health and Nutrition Examination Survey (NHANES) data, indicating that the prevalence has continued to increase since 1999 (Ogden et al, 2006). Included in these statistics just within the 19-39 year olds compared to other age groups, reported soft drink intake is at its greatest. The NHANES data, also, illustrate that a majority of young adults ages 20-29 years consume less than 1 serving per day of fruit (males 63%, females 59%) and vegetables including potatoes (males 19%, females 20%). The college student's health can be shown from the statistic that on average, college students eat at fast-food restaurants one to three times per week (Nelson et al 2008.)

Universities are uniquely positioned to implement a comprehensive strategy for increasing physical activity, and advocate for healthy eating by addressing individual-level factors such as time constraints, motivation, or skill and determinants beyond a college students' control such as social, economic, and environmental factors (Zaza et al 2005.) Having a health promotion department at a university can be extremely helpful for the students at that university.

Questionnaires, useful tools in health care

Questionnaires are commonly used in studies of health and health services although their use originated in social science studies conducted in Victorian Britain by social reformers such as

Charles James Booth to collect information on poverty and working class life (McMillan et al 2001.) To this day, questionnaires remain more frequently used in applied social research (McMillan et al 2001.) The researcher uses this information from a sample of individuals to make some inference about the wider population. The data are collected in a standardized form which is usually, but not necessarily, done by means of a questionnaire or interview. It is important to keep in mind that surveys are designed to provide a snapshot of how things are at a specific time and there is not an attempt to control conditions or manipulate variables as well as to not allocate participants into groups or vary the treatment they receive. Surveys are well suited for descriptive studies but can also be used to seek explanation and provide data for testing a hypotheses. With survey research it is important to recognize that the survey approach is a research strategy and not just a research method. When it comes to survey research, according to Hunt and colleagues, there should be a development process for questionnaires that normally considers seven steps. Step 1 being that the questionnaire needs to specify what information is wanted. 2, select the type of questionnaire and method of administration. 3, Determine the content of individual questions. 4, choose the form of response to each question. 5, determine the number of questions and sequence of each question. 6, re-examine steps 1-5 and revise if necessary. 7, pretest the questionnaire and revise if necessary (Litwin, 2003.) With survey research via internet application growing, it may seem to come across as an easy research tool especially in a collegiate setting when studying the student population. However, survey research is not without its methodological concerns such as low response rate, self-selectivity of users, technological issues, security of privacy. Yet, the use of survey research is a strategy that has been found to be a sensible means of achieving meaningful results.

Advantages with survey research include that the research produces data that are based on real-world observations (empirical data) and can be used to form the generalizable of a population. Surveys can also produce large amounts of data in a short amount of time for a fairly low cost. This way researchers can set a specific time frame for a project which can assist in planning and producing end results. Disadvantages with survey research are if the researcher focuses too much on the range of coverage to the exclusion of an adequate account of implications of the data for the relevant issue, question, problem, or theory the significance of the data can become neglected. Another disadvantage with survey research is that the data that are produced are likely to lack details or depth on the topic being investigated. Lastly, response rate may be problematic, particularly in light of the high quantity of surveys employed in so many different areas of research. Response rate can be hard to control particularly when it is carried out by an online survey post, but it is also difficult when the survey is carried out face-to-face or over the telephone.

Furthermore, because of these disadvantages, it is important for the design in the research tool to be as optimal as possible. The design in the research tool includes having a good research question that has the characteristic that its purpose is to address a single clear and explicit research item whereas conversely, the end product of a study that aims to answer a number of very different questions is often weak (Streiner et al 1995.) The weakest studies of all are those that have no true research question, and to look for significant data or interesting associations within the wide range collected (Streiner et al 1995.) Other pitfalls to avoid in any type of research include: allowing a decision regarding methods to decide the questions to be asked, posing research questions that cannot be answered or even asking questions that have already been answered in previous research thoroughly.

The Development of the Research Tool

Online surveys, involve sending questionnaires to a large sample of people covering a wide area or interest. Postal questionnaires are usually received “cold”, without any previous contact between the researcher and respondent (Kelley, 2003). There is typically no connection between the researcher and respondent and because of this and many reasons, the response rate for this type of method is usually low, 20% depending on the content of the survey and its length. A large sample is required to counteract the low response rate when using online questionnaires to ensure demographic profiles of the survey respondents reflect the survey population, and to provide a sufficiently large data set for analysis (DeVellis 2003).

It is critical that the planning of the content of a research tool be careful and relate clearly to the research question (Kelley, 2003). This process should involve experts in the field who can ensure that the question design targets the appropriate population in order to ensure the validity of the questions included in the study. In addition, researchers should conduct a thorough literature review to identify what is the current research as well as what has already been used as validated questionnaires. Having validated questionnaires can set up the research using a well-designed research tool with an appropriate intended use. In addition, a research tool must also demonstrate psychometric properties of reliability and validity. The development of a research tool is equal in importance to the data collection process. If the research instrument has not undergone a thorough process of development and testing, giving it credibility and reliability; the validity of the research findings themselves may be questioned, and may even be completely disregarded.

The layout of the questionnaire is important and can make a difference with regard to the reliability and validity of the measure. Questionnaires should be clear and visually appealing. The use of upper case letters only should be avoided as this is hard to read. Questions should be numbered and clearly grouped by subject with clear instructions on how to best answer the questionnaire with headings included to make the questionnaire easier to follow. As a researcher thinks about the format of their survey, they should consider avoiding questions that are “double barreled” meaning, two or more questions in one, questions containing double negatives, or leading or ambiguous questions (Streiner et al 1995.) When the possible responses are known, closed questions with pre-coded response options are suitable, quick to administer, and can easily be coded and analyzed. After the layout of the research tool has been determined, it should then be tested on a pilot sample of the target population where this allows the researcher to identify whether the respondents understand the questions and instructions given, as well whether the meaning of the questions is the same for all respondents. With closed questions, piloting allows the researcher to highlight whether sufficient response categories are available, and whether any questions are systematically missed by respondents (Sitzia, 1999.)

In the current study, the Health Promotion team has the best intentions to collect data of the Kansas State University students with use of the survey tool they have created. Unfortunately, it may not be the most accurate tool for assessment of health needs. The purpose of this study was to assess the survey tool for its readability score, design, reliability and validity of questions that the Health Promotion team has used for the Fall 2016 and Fall 2017 student population at Kansas State University. The hypothesis is that there would be some disadvantages with the research tool that the Lafene Health Center used to base classes taught, programs, and public health events that reach out to the target population of Kansas State University students.

Methods

The American College Health Association- National College Health Assessment

The development of the Fall 2016 and Fall 2017 “The Health Assessment Needs of Kansas State Students survey” were based off the American College Health Association- National College Health Assessment (ACHA-NCHA), which is a nationally recognized research survey used to collect data about students’ health behaviors and perceptions. The Health Promotion team at KSU did not use the ACHA-NCHA to conduct the Fall 2016 and Fall 2017 The Health Assessment Needs of Kansas State Students. Using the ACHA-NCHA would have required additional expenses for the Lafene Health Center and the Health Promotions Team in order to deliver the assessment. The process for a university such as Kansas State University to use the ACHA-NCHA requires an order of their web-based survey and products or the paper-based survey. Then the university would need to email the ACHA-NCHA a spreadsheet file of student email addresses, the letter of invitation/consent, their preferred subject line, and a reminder letter for non-responding students. The university would also need to submit their copy of the Institutional Review Board (IRB) approval and administrative approval if applicable with a completed demographic survey. After the completion of the survey, process and administrative requirements the ACHA-NCHA will send the university their institutional data file which includes a statistical program file with a built-in codebook for their own analysis. As part of the comprehensive institutional report, a frequency distribution for every survey question by gender for all subjects and an institutional executive summary with highlights of the results is also

included. Once the survey is completed, the ACHA-NCHA will aggregate the university's group report and group executive summary for the universities' survey period so that they can compare their data to the national sample. The average turnaround time for the institutional results are only six weeks or less once the survey has closed. The Lafene Health Promotions Department developed The Health Assessment Needs of Kansas State Students survey based on what the ACHA-NCHA web based survey and distributed it via Qualtrics in the same manner that ACHA-NCHA does for universities that seek their services. The Fall 2016 and Fall 2017 Health Assessment Needs of Kansas State Students were analyzed for readability, reliability, and correlations for the purpose of this investigation. This questionnaire focused on holistic health of physical activity, hydration, nutrition, tobacco use, and mental health, social determinants of health, general health, and demographics. The focus of this study was on section A: Physical Activity, B: Nutrition, and H: Demographics.

Variables

Physical Activity

Physical activity was measured via self-report responses to questions related to frequency of moderate-intensity activity, strength training, and flexibility or stretching exercises, the location where they engage in physical activity, as well as barriers to participation in physical activity.

Dichotomous variables for moderate-intensity activity, strength training, and flexibility and/or stretching exercises were used in this health survey to indicate whether the individual had participated in at least 30 minutes of any of the physical activity types. Individuals who met the participation of 30 minutes of moderate-intensity activity, strength training, and flexibility and/or

stretching exercises were categorized under “yes” and individuals who reported less than the 30 minutes requirement for these physical activity variables were categorized under “no”.

The questionnaire then went into further detail to ask the individual whether they participate in least 30 minutes per week of the three different physical activity focuses (moderate-intensity activity, strength training, and flexibility and/or stretching exercises.) This was categorized by 1. I do not participate, 2. 1 Day, 3. 2 days, 4. 4 days, 5. 5 or more days. The question in this section of physical activity focused on where the individual typically participates in physical activity. The individuals had the options to choose all that apply in either home, built environment (e.g. trails parks), off-campus gym/studio, k-state recreation center, or other. The final question in the physical activity section asked the individual what the main reasons were for not exercising.. The select all that apply options were as following; 1. My job is physical or hard labor already, 2. Exercise is not important to me, 3. I don’t have access to a facility that has the things I need, like a pool or a track, 4. I don’t have enough time to exercise, 5. I would need childcare and I don’t have it, 6. I need an exercise partner and I don’t have one, 7. I don’t enjoy exercise, 8. It costs too much to exercise, 9. There is no safe place for to exercise, 10. Lack of motivation, and 11. Other.

Nutrition

Nutrition questions in the health assessment survey focused on probing about personal nutrition/dietary habits by first asking how many glasses of water the individual drinks in a day on average. Between the THANKS 2016 and THANKS 2017 the survey ranges varied due to a mistake of ranges in the 2016 survey. The final range options were 1-2, 3-4, 5-7, 8+, and I do not drink water.

The next nutrition question asked the individual where they get their meals during the week as a select all that apply pertaining to frequencies of once a week, 2-3 times a week, 4-5 a week, every day. The options for location of where meals were obtained from were 1. At home, I prepare my own meals, 2. Dining halls, 3. Off-campus restaurants including delivery, 4. Greek housing, 5. On-campus restaurants, 6. Vending machines, 7. Meal delivery service, 8. Other.

For the third question in the THANKS questionnaire nutrition section asked what barriers does the individual have in making healthy food choices. This was given as a select all that apply option for 1. I am not able to get to the grocery store, 2. Nutritious food costs too much, 3. I do not have enough time to purchase and prepare meals and snacks, 4. I do not know how to cook, 5. I have dietary restriction due to a medical condition, 6. I have dietary restrictions due to religious beliefs/customs, 7. I do not know how to make health food choices, 8. Other, 9. Not applicable; I do not have barriers to making health food choices.

Question 4 in the nutrition section was formatted in a matrix for frequency of consumption (multiple times daily, one time daily, multiple times weekly, one time weekly, rarely, and never). Individuals were also asked to select all that apply for sugarsweetened beverages, energy drinks, sport drinks, juice, sweetened or specialty coffee, candies, pastries, cakes and cookies.

A dichotomous answer choice of either “yes” or “no” was used for the question of whether the individual consumed at least two servings of fruits and three servings of vegetables on a typical day. This question was followed up by asking for an explanation for why the individual does not consume at least the two servings of fruits and three servings of vegetables on a typical day. This was given as a select all that apply option for the answer choices of 1. I am not able to get to the grocery store, 2. It costs too much, 3. I do not have enough time to purchase and prepare them 4. I

do not know how to prepare/cook/eat them 5. I have dietary restrictions due to a medical condition, 6. I have dietary restrictions due to religious beliefs/customs, and 7. Other.

Question 7 in the THANKS survey, asked whether they believe that in general they consume a nutritious diet. This is answered by either agree, neither agree or disagree, disagree.

Question 8 asked the individual to answer either yes, sometimes, or no for food security pertaining to being concerned about not having food for them and/ or their family to eat.

Demographic Variables

Variables for gender included the choices of male, female, transgender, or prefer not to disclose. Choice options for sexuality included heterosexual or straight, gay or lesbian, and bisexual. Classification at K-State was determined using the following choices: undergraduate freshmen, sophomore, junior, senior, graduate or professional student, or not seeking degree. Race/ethnicity choice options included White, Black or African American, Hispanic or Latino, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, Middle Eastern, Other, or Prefer not to disclose. Choice options for age range include the following: ≤ 18 , 19-24, 25-30, 31-39, 40-49, 50+. Residence was determined using the following choices: campus residence hall, fraternity or sorority house, cooperative/scholarship house, other college or university housing, off-campus housing, parent/guardian's home, or other. Choice options for status of student included the options of domestic or international student. Choice options for enrollment status included the options of part-time or full-time student. The survey were distributed in the Fall of 2016 and Fall 2017 through the Quattrics system. Students at the undergraduate level through graduate or professional student were chosen at random through their university email. Each survey it selected 2,500 students from Kansas State University to

complete the survey. This study was approved by the IRB (#8373) for the Fall 2016 survey as well as renewed for the Fall 2017 questionnaire.

Data Analysis

IBM SPSS Statistical software version 25.0 was used to analyze the sample data. Descriptive statistics were determined for physical activity and nutrition questions as well as for demographic variables, including university class, age, residency, enrollment status, and race/ethnicity. Means and SD were determined for each variable of interest, as well as for subsamples based on demographic information. Frequencies for physical activity questions pertaining to reasons not to exercise and participation in physical activity were conducted. Frequencies for nutrition questions were calculated for data pertaining to glasses of water per day, meals at home, meals at dining hall, meals on campus, meals off campus, meals delivered, other meals, barriers to health food, stating if the subjects had a general nutritious diet, food security, fruit and vegetable consumptions, and reasons for not having fruit and vegetables.

To answer the primary research questions regarding the reliability of the THANKS questionnaire, a reliability analysis was conducted using physical activity and nutrition variables. The reliability analysis focused on the frequency of different physical activity options, the frequency of various sugar sweetened beverages and foods consumed by analyzing their mean, standard deviation, Cronbach's Alpha, and Intra-class correlations with a 95% confidence interval to test for reliability and validity of the Fall 2016 and Fall 2017 survey.

Results

Demographics

The Health Assessment Needs of Kansas State Students questionnaire of Fall 2016 and Fall 2017 included 809 total participants. Participants who provided complete data for physical activity, nutrition, university class, age, residency, enrollment status, and race/ethnicity were included in analyses. The final sample included 269 males and 540 females, mostly white (83.6 %), freshman (28.7 %), living off campus(58.2 %), and enrolled full-time at Kansas State University (95.5 %).

Table 1 describes the demographics of the sample of Kansas State University students. Overall, women made up the majority of the sample size with 66.7%. Table 1 represents class (Freshman, Sophomore, Junior, Senior, Graduate or professional student) and demographics for each class in academic standing including gender, age range, residence, and race and ethnicity. Age range, gender, race/ethnicity, residency can be found on Table1 broken down by class (Freshman, Sophomore, Junior, Senior, Graduate or professional student.)

Table 1. Demographics of THANKS Fall 2016 and 2017 separated by academic standing, gender, race/ethnicity, and residence at KSU.

Academic Standing				Academic Standing			
Freshman		Frequency	Percent	Sophomore		Frequency	Percent
Age Range		1.28 (.515)		Age Range		2.04 (.458)	
		≤ to 18 years old	170 72.3			≤ to 18 years old	4 3.4
		19 to 24 years old	60 25.5			19 to 24 years old	111 93.3
		25 to 30 years old	1 0.4			31 to 39 years old	3 2.5
		40 to 49 years old	1 0.4			40 to 49 years old	1 0.8
Gender		1.68 (.469)		Gender		1.68 (.468)	
		Male	75 31.9			Male	38 31.9
		Female	157 66.8			Female	81 68.1
Race/Ethnicity		1.52 (1.454)		Race/Ethnicity		1.55 (1.473)	
		Caucasian	196 83.4			Caucasian	99 83.2
		Black or African American	5 2.1			Black or African American	4 3.4
		Hispanic or Latino	12 5.1			Hispanic or Latino	5 4.2
		American Indian or Alaskan Native	2 0.9			American Indian or Alaskan Native	1 0.8
		Asian	9 3.8			Asian	6 5
		Other	6 2.6			Other	3 2.5
Residence		1.77 (1.539)		Residence		3.53 (1.73)	
		Campus Residence Hall	177 75.3			Campus Residence Hall	23 19.3
		Fraternity or Sorority House	10 4.3			Fraternity or Sorority House	25 21
		Copporative or School House	7 4.3			Copporative or School House	3 2.5
		Other College/University Housing	7 3			Other College/University Housing	4 3.4
		Off Campus	23 9.8			Off Campus	62 52.1
		Parent/Guardian Home	9 3.8			Parent/Guardian Home	2 1.7

Academic Standing				Academic Standing			
Junior		Frequency	Percent	Senior		Frequency	Percent
Age Range		2.14 (.583)		Age Range		2.18 (.522)	
		19 to 24 years old	137 92.6			19 to 24 years old	196 87.1
		25 to 30 years old	5 3.4			25 to 30 years old	18 8
		31 to 39 years old	4 2.7			31 to 39 years old	8 3.6
		50+ years old	2 1.4			40 to 49 years old	2 0.9
Gender		1.61 (.488)		Gender		1.69 (.473)	
		Male	57 38.5			Male	70 31.1
		Female	91 61.5			Female	152 67.6
Race/Ethnicity		1.51 (1.473)		Race/Ethnicity		1.37 (1.224)	
		Caucasian	127 85.8			Caucasian	197 87.6
		Black or African American	2 1.4			Black or African American	7 3.1
		Hispanic or Latino	9 6.1			Hispanic or Latino	9 4
		American Indian or Alaskan Native	1 0.7			American Indian or Alaskan Native	2 0.9
		Asian	2 1.4			Asian	3 1.3
		Other	5 3.4			Other	3 1.3
Residence		4.20 (1.424)		Residence		4.73 (.941)	
		Campus Residence Hall	14 9.5			Campus Residence Hall	8 3.6
		Fraternity or Sorority House	16 10.8			Fraternity or Sorority House	6 2.7
		Copporative or School House	4 2.7			Copporative or School House	3 1.3
		Other College/University Housing	7 4.7			Other College/University Housing	11 4.9
		Off Campus	106 71.6			Off Campus	187 83.1
		Parent/Guardian Home	1 0.7			Parent/Guardian Home	7 3.1

Academic Standing			
Graduate or professional student		Frequency	Percent
Age Range		3.02 (.982)	
		19 to 24 years old	30 34.1
		25 to 30 years old	35 39.8
		31 to 39 years old	16 18.2
		40 to 49 years old	5 5.7
		50+ years old	2 2.3
Gender		1.67 (.473)	
		Male	29 33
		Female	59 67
Race/Ethnicity		2.17 (1.901)	
		Caucasian	4 65.9
		Black or African American	7 4.5
		Hispanic or Latio	1 8
		American Indian or Alaskan Native	14 1.1
		Asian	2 15.9
		Other	2 2.3
Residence		4.64 (1.116)	
		Campus Residence Hall	7 8
		Other College/University Housing	6 6.8
		Off Campus	73 83
		Parent/Guardian Home	2 2.3

In bold: mean data and (standard deviation) of each characteristic by academic standing.

Readability Analysis

A readability test was run to indicate how difficult the Fall 2016 and Fall 2017 THANKS questionnaire was to understand. Two forms of readability tests were performed, the first was The Flesch Reading Ease with a Readability Formula ($RE = 206.835 - (1.015 \times ASL) - (84.6 \times ASW)$). RE is Readability Ease, ASLE is the Average Sentence Length; the number of words divided by the number of sentences, and ASW is the Average number of syllables per word; the number of syllables divided by the number of words. RE is the number ranging from 0 to 100 where the higher the number, the easier the text is to read. The second test was the Flesch-Kincaid Grade Level Readability Formula, where readability is calculated based on the formula $FKRA = (0.39 \times ASL) + (11.8 \times ASW) - 15.59$; where FKRA indicated Flesch Kincaid Reading Age, ASL indicated Average Sentence Length with the number of words divided by the number of sentences, and ASW indicated the average number of syllables per word with the number of syllables divided by the number of words. A score of five indicated a grade school level whereas a score of nine means that a ninth grader would be able to read the document.

Analysis of the Fall 2016 and Fall 2017 THANKS survey resulted in a Flesch Reading Ease score of 70.3 indicating the THANKS survey is fairly easy to read, and the Flesch-Kincaid Grade Level score of 5.2 indicated a fifth grade reading level.

Reliability Analysis

In order to determine the consistency of the Fall 2016 and Fall 2017 THANKS questionnaire, a reliability analysis was conducted on the Physical Activity series questions included the following questions “How many times do you participate in at least 30 minutes of “moderate intensity” activity (you are able to talk, but not sing) in a week?”, “How many times

do you do strength or resistance training exercises in a week?”, and “How many times do you do flexibility or stretching exercises in a week?” With the response choices of “I do not participate”, “1 day”, “2 days”, “3 days”, “4 days”, “5 or more days.” These choice options were coded with the following: 1. “I do not participate”, 2. “1 day”, 3. “2 days”, 4. “3 Days”, 5. “4 Days”, 6. “5 or more days” for the purpose of analyses. The Cronbach’s Alpha with all physical activity questions together was 0.58. With each item deleted resulting in a Cronbach’s Alpha value of less than 0.70.

The next section in Table 2 had a reliability analysis conducted for the “How often do you consume the following?” section of various SBB beverages and foods. This section included the following choices of: SSB number per week, Energy drink number per week, Sports drink number per week, Juice number per week, Candies number per week, and Pastries number per week. The participants had the option of selecting “Multiple times daily”, “One time daily”, “Multiple times weekly”, “One time weekly”, “Rarely”, and “Never.” The options were coded 1-6, respectively. Questions being less than 0.70 if the Cronbach’s Alpha if item were deleted for this section produced less than 0.70 value, indicating a low reliability.

The last section for reliability analysis was for the series question of “Where do you get your meals during the week?” for various places that college students at Kansas State University have access to. The options included: Meals at home per week, Meals at dining home per week, Meals on campus per week, Meals off campus per week, Meals at vending machine per week, Meals delivered to campus per week, Meals other per week. The participants had the option of selecting “Multiple times daily”, “One time daily”, “Multiple times weekly”, “One time weekly”, “Rarely”, and “Never.” The options were coded 1-6, respectively. A Cronbach’s Alpha of 0.89

was shown for this section with a high reliability above 0.80 for Cronbach's Alpha if item deleted for all items found in this section.

Table 2. Reliability analysis of physical activity and nutrition sections of KSU students THANKS 2016 & 2017 questionnaire.

	N	Mean (SD)	Cronbach's Alpha	Cronbach's Alpha if item Deleted
Measurement				
<i>Physical Activity</i>			0.58	
Frequency of Moderate Intensity	652	4.63 (1.24)		0.49
Frequency of Strength/Resistance Training	652	2.96 (1.61)		0.31
Frequency of Flexibility/Stretching	652	2.87 (1.57)		0.59
<i>"How often do you consume the following?"</i>			0.61	
SSB Number per Week	855	3.69 (5.73)		0.59
Energy Drink Number per Week	848	0.50 (1.75)		0.57
Sports Drink Number per Week	851	1.30 (3.25)		0.57
Juice Number per Week	851	1.77 (3.12)		0.58
Sweet Coffee Number per Week	850	1.51 (2.96)		0.57
Candies Number per Week	852	2.18 (3.77)		0.58
Pastries Number per Week	853	2.40 (3.56)		0.54
<i>"Where do you get your meals during the week?"</i>			0.89	
Meals at Home per Week	663	4.83 (2.12)		0.85
Meals at Dining Hall per Week	283	6.12 (1.59)		0.92
Meals On Campus per Week	268	1.67 (1.11)		0.86
Meals Off Campus per Week	633	1.83 (1.15)		0.88
Meals at Vending Machine per Week	143	1.72 (1.31)		0.88
Meals Delivered Campus per Week	43	1.77 (1.53)		0.88
Meals Other per Week	51	4.59 (2.60)		0.85

SSB- sugar sweetened beverages, SD- standard deviation. *Cronbach's Alpha and if item deleted analysis on physical activity frequency questions and nutrition items/location frequency questions, Cronbach's Alpha < 0.70 =low reliability.

Inter-item correlations for reliability analysis were conducted to determine internal consistency of the survey tool. Items below 0.15 have poor inter-item correlations, suggesting they are not highly related to each other and might not be suitable for measuring a single construct. Similarly, items that are above 0.50 may be redundant. According to Clark and

Watson (1995), inter-item correlations should fall somewhere between 0.15 and 0.50 to have acceptable internal consistency. Tables 3-4 show the inter-item correlations for physical activity and nutrition sections in the Fall 2016 and Fall 2017 THANKS questionnaire. All inter-item correlations below 0.15 indicated items are not highly related in the survey tool. In Table 4 for the various SSB series questions most respondents were above the minimum 0.15 inter-item correlation with most falling within the 0.15 to 0.50 range recommended with the exception of “Candies Number Per Week” and “Energy Drink Number Per Week” at 0.096 being below the 0.15 minimum. Table 5 displays the inter-item correlations for frequency of meals and location series of questions where the majority of the items were above the 0.50 recommended cut off with only a few items within the 0.15 and 0.50 range as well as five items below the minimum 0.15 range.

Table 3. Correlation of physical activity frequency questions of KSU students THANKS 2016 & 2017 questionnaire.

	Inter-Item Correlation Matrix: Physical Activity		
	Frequency of Moderate Intensity	Frequency of Strength/Resistance training	Frequency of Flexibility/Stretching
Frequency of Moderate Intensity		0.42	0.13
Frequency of Strength/Resistance training	0.42		0.33
Frequency of Flexibility/Stretching	0.13	0.33	

Inter-item correlation < 0.15 = low reliability, inter-item correlation 0.15- 0.50 recommended range of reliability.

Table 4. Correlation of “How often do you consume the following?”section of KSU students THANKS 2016 & 2017 questionnaire.

	Inter-Item Correlation Matrix: "How often do you consume the following?"					
	SSB Number per Week	Energy Drink Number per Week	Sports Drink Number per Week	Sweet Coffee Number per Week	Candies Number per Week	Pastries Number per Week
SSB Number per Week		0.26	0.23	0.18	0.19	0.19
Energy Drink Number per Week	0.26		0.33	0.37	0.09	0.2
Sports Drink Number per Week	0.23	0.33		0.18	0.03	0.18
Juice Number per Week	0.2	0.27	0.24	0.25	0.03	0.15
Sweet Coffee Number per Week	0.18	0.37	0.18		0.15	0.19
Candies Number per Week	0.19	0.09	0.03	0.15		0.47
Pastries Number per Week	0.19	0.2	0.18	0.18	0.5	

SSB- sugar sweetened beverages. Inter-item correlation < 0.15 = low reliability, inter-item correlation 0.15- 0.50 recommended range of reliability.

Table 5. Correlation of “Where do you get your meals during the week?” section of KSU students THANKS 2016 & 2017 questionnaire.

	Inter-Item Correlation Matrix: "Where do you get your meals during the week?"					
	Meals at Home per Week	Meals at Dining Hall per Week	Meals On Campus per Week	Meals at Vending Machine per Week	Meals Delivered Campus per Week	Meals Other per Week
Meals at Home per Week		0.45	0.98	0.63	0.49	0.81
Meals at Dining Hall per Week	0.46		0.73	-0.05	-0.08	0.14
Meals On Campus per Week	0.93	0.73		0.47	0.35	0.68
Meals Off Campus per Week	0.83	0.26	0.68	0.39	0.49	0.55
Meals at Vending Machine per Week	0.63	-0.05	0.47		0.88	0.91
Meals Delivered Campus per Week	0.49	-0.08	0.35	0.88		0.77
Meals Other per Week	0.81	0.14	0.68	0.91	0.77	

Inter-item correlation < 0.15 = low reliability, inter-item correlation 0.15- 0.50 recommended range of reliability.

Compare Means

Analysis of variance was used to compare means on sections of the survey that were hypothesized to follow a logical trend. One-way analysis of variance was used to determine whether there are any statistical differences between the means of two or more independent groups. For example, in cases where yes was the response to having a generally nutritious diet, there would logically be a lower mean for the amount of sugar-sweetened beverages consumed per week. Tables 6-12 describe the comparisons between general nutritious diet or participation in physical activity to various questions in the survey such as location of food consumption, various SSB and sugary foods, and consumption of glasses of water. The bolded variables show significant correlations with how a person would answer that question according to having a general nutritious diet or participation in physical activity.

For the comparison of a self-reported general nutritious diet and “How often do you consume the following?” on Table 6, the SSB, energy drinks, candies per week were associated with a less nutritious diet ($p = 0.001, 0.019, 0.005$).

Table 6. Comparison of means of general nutritious diet and “How often do you consume the following?” sections of KSU students THANKS 2016 & 2017 questionnaire.

	<i>"How often do you consume the following?"</i>						
	SSB Number per Week (0.001)	Energy Drink Number per Week (0.019)	Sports Drink Number per Week (0.810)	Juice Number per Week (0.805)	Sweet Coffee Number per Week (0.721)	Candies Number per Week (0.005)	Pastries Number per Week (0.522)
General Nutritious Diet							
"No"	5.836	0.883	1.185	1.661	1.833	3.516	2.373
"Neither Agree nor Disagree"	4.09	0.558	1.366	1.793	1.683	2.322	2.419
"Yes"	2.822	0.26	1.495	1.947	1.509	1.705	2.079

SSB- sugar sweetened beverages. * One-way analysis of variance for comparisons, in parenthesis = p value, $p < 0.05$.

On Table 7, similarly the self-reported general nutritious diet and location of food consumption showed significant differences in the meals at home ($p = 0.007$), meals off campus ($p = 0.000$), meals at vending machine ($p = 0.031$), and meals other per week categories ($p = 0.045$.) Consumption of meals at home per week and meals other per week were greater as the self-report of the general nutritious diet agrees. Inversely meals off campus and meals at vending machine were less frequent responses as the self-report general nutritious diet agreed. Table 8 shows the comparison of glasses of water consumed per day for those indicating a general nutritious diet versus those indicating that they don't consume a general nutritious diet. The self-reported general nutritious diet and water consumption showed significant differences in variable. ($p = 0.001$)

Table 7. Comparison of means of general nutritious diet and location of food consumption sections of KSU students THANKS 2016 & 2017 questionnaire.

	<i>"Where do you get your meals during the week?"</i>						
	Meals at Home per Week (0.007)	Meals at Dining Hall per Week (0.135)	Meals On Campus per Week (0.339)	Meals Off Campus per Week (0.000)	Meals at Vending Machine per Week (0.031)	Meals Delivered Campus per Week (0.880)	Meals Other per Week (0.045)
General Nutritious Diet							
"No"	4.4184	7	1.8182	2.6522	2.8333	1	6
"Neither Agree nor Disagree"	4.8841	6.2458	1.9597	1.9521	1.8289	1.75	3.5
"Yes"	5.3876	6.0917	1.614	1.536	1.4583	1.5556	5.6562

* One-way analysis of variance for comparisons, ,in parenthesis = p value, $p < 0.05$.

Table 8. Comparison of means of general nutritious diet and glasses of water per day sections of KSU students THANKS 2016 & 2017 questionnaire

	Glasses of water per day (0.001)
General Nutritious Diet	
"No"	3.414
"Neither Agree nor Disagree"	3.569
"Yes"	4.481

* One-way analysis of variance for comparisons, in parenthesis = *p value*, $p < 0.05$.

Table 9. shows the comparison between general nutritious diet and physical activity.

There was significance for those who indicated having a generally nutritious diet as compared to those who indicated not having generally nutritious diet, physical activity was lower ($p = 0.000$), however, frequency of moderate-intensity physical activity, and strength or resistance training was significantly higher ($p = 0.002, 0.000$.)

Table 9. Comparison of means of general nutritious diet and physical activity sections of KSU students THANKS 2016 & 2017 questionnaire

Physical Activity					
	Participation in Physical Activity (0.000)	Frequency of Moderate Intensity (0.002)	Frequency of Strength/Resistance Training (0.000)	Frequency of Flexibility/Stretching (0.209)	Location of Engagement in Physical Activity (0.779)
General Nutritious Diet					
"No"	1.53	4.33	2.8	2.9	3.94
"Neither Agree nor Disagree"	1.32	4.19	2.68	3.13	4.19
"Yes"	1.19	4.69	3.43	3.37	4.29

* One-way analysis of variance for comparisons, in parenthesis = *p value*, $p < 0.05$.

Tables 10-12 present participation of physical activity and various sections in the survey such as SSB and sugary food consumption, location of food consumption, and glasses of water

consumption. Table 10 compared participation in physical activity to “How often do you consume the following?” where SSB per week showed significance with being greater when a person claimed they did not participate in physical activity ($p = 0.001$.) Table 11 compared participation of physical activity and glasses of water per day showing significance to less water consumption per day when a person stated they were not physically active ($p = 0.000$.) There was significance in Table 12 comparing participation in physical activity to “Where do you get your meals during the week?” for the location of meals at dining hall per week ($p = 0.014$), but there was no significance for any of the other locations.

Table 10. Comparison of means of participation in physical activity and “How often do you consume the following?” sections of KSU students THANKS 2016 & 2017 questionnaire

	<i>“How often do you consume the following?”</i>						
	SSB Number per Week (0.001)	Energy Drink Number per Week (0.524)	Sports Drink Number per Week (0.362)	Juice Number per Week (0.725)	Sweet Coffee Number per Week (0.856)	Candies Number per Week (0.135)	Pastries Number per Week (0.344)
Participation Physical Activity							
"Yes"	3.32	4.78	1.363	1.751	1.524	2.072	2.339
"No"	4.767	0.566	1.132	1.836	1.482	2.511	2.601

SSB- sugar sweetened beverages. * One-way analysis of variance for comparisons, in parenthesis = p value, $p < 0.05$.

Table 11. Comparison of means of participation in physical activity and glasses of water per day? sections of KSU students THANKS 2016 & 2017 questionnaire

	Glasses of water per day (0.000)
Participation Physical Activity	
"Yes"	4.477
"No"	3.469

* One-way analysis of variance for comparisons, in parenthesis = p value, $p < 0.05$.

Table 12. Comparison of means of participation in physical activity and “Where do you get your meals during the week?” ? sections of KSU students THANKS 2016 & 2017 questionnaire

	"Where do you get your meals during the week?"						
	Meals at Home per Week (0.127)	Meals at Dining Hall per Week (0.014)	Meals On Campus per Week (0.960)	Meals Off Campus per Week (0.125)	Meals at Vending Machine per Week (0.642)	Meals Delivered Campus per Week (0.204)	Meals Other per Week (0.741)
Participation Physical Activity							
"Yes"	4.9012	5.9805	1.6773	1.7875	1.6923	1.5806	4.6548
"No"	4.6134	6.5	1.6692	1.95	1.8077	2.25	4.3333

* One-way analysis of variance for comparisons, in parenthesis = *p* value, $p < 0.05$.

Discussion

The purpose of this study was to assess the survey tool for its layout design, readability score, and reliability and validity of questions pertaining to nutrition and physical activity. Although the survey was conducted through a familiar system to the students of Kansas State University, the questionnaire has double barreled and triple barreled questions, such as the first physical activity question. This is further supported with the low reliability indicated for the physical activity section through a Cronbach's Alpha and Cronbach's Alpha if item deleted analysis. With the various ranges above and below the recommended range for inter-item correlations for this nutrition section it may be necessary to reconsider some of them items for the purpose of this survey tool. Literature does not support participation of physical activity being less in a self-reported general nutritious person. According to the significance of these two comparison in the questionnaire, the students of Kansas State say otherwise. This could be an effect of the dichotomous question of physical activity on the three different frequencies being grouped together, which could cause confusion to the participation of the survey (Litwin, 2003, Kelley, 2003, McMillan and Schumacher, 2001). With the THANKS survey it is a matter of understanding what to do with the information the Health Promotion team has collected. The

Health Promotion team at KSU currently provides programs for KSU students to attend such as Wellness Week, which is a week long health-focused event at the student union designed to improve the various aspects of student health. This Wellness Week event makes the student have to be selected to go to the one location on campus that may not be the daily stop for every student at KSU. Rather than only doing an event such as Wellness Week for a week the Health Promotion can use the THANKS questionnaire to understand where students are participating in physical activity, consuming food, and what foods they are consuming. They may use the information from the THANKS questionnaire to construct programs that will focus on change at the root of the issue, such as providing healthier foods at the dining halls since the reliability of that section was high in their location of where they obtained their meals during the week. The Health Promotion team may, also, use the information on the health behaviors of K-State students to make new programs that revolve around a similar group of people and make them connected and easily accessible to the population affected. The importance of gathering accurate data for a questionnaire that is specified for the KSU student population is crucial when the Health Promotion team is seeking to make new programs, reinforce current programs, and have a better outreach to the student population at Kansas State University.

Strengths of the survey

The THANKS survey administered by the Health Promotion department at Kansas State University Lafene Health Center has the strength of a relatively large sample size and response rate. For any survey, it can be difficult to get an adequate and complete response rate. With the THANKS survey they had a large amount of participants. Given the population the Health Promotion department is studying, it can be difficult for a college population to respond as this

target population may not be interested in filling out a questionnaire (Dinger and Waigandt, 1997). The overall sample size for all responses to the survey was 809 students from different classes from the Fall 2016 and Fall 2017 semesters. The survey was administered through a familiar system to the students, Qualtrics, which may make completion of the survey easier and more convenient. To also make the questionnaire easier to read it would be beneficial to clearly group by subjects with clear instructions. The THANKS questionnaire included headings that made the questionnaire instructions easy to understand. Another strength for this questionnaire tool was the high reliability of the 'location of food consumption' content. The THANKS questionnaire demonstrated statistical differences of general nutritious diet to consumption of certain foods. The questionnaire also demonstrated statistical differences where meals were obtained as well as with physical activity participation and consumption of sugar-sweetened beverages showing significance. The statistical differences showed that students were thoughtfully answering these questions logically instead of simply clicking buttons to get through the survey (BrckaLorenz et al, 2013). Lastly, the THANKS survey demonstrated a Flesch Reading Ease score of 70.3 indicating it is fairly easy to read as well as a Flesch-Kincaid Grade Level score of 5.2 indicating the reading age of fifth graders for this survey administered to college students.

Limitations of the survey

Limitations for this study include the lack of a piloting the questionnaire to a smaller sample size of various demographics of students, or implementing the survey to the same students 2-3 weeks later to better assess consistency of answer responses. Other limitations of the study include the use of triple barreled questions, such as the first physical activity question in

the survey where moderate intensity, strength/resistance training, and or flexibility and stretching were grouped together. Other limitations with the questionnaire include the layout not being clearly defined, such as, the different physical activities. Reliability analyses showed a low Cronbach's Alpha for the physical activity section (0.58) and a Cronbach's Alpha if each item was deleted less than 0.70. Low reliability for physical activity sections indicates that there is a need to reformat the questions in this section. There was, also, low reliability seen in "How often do you consume the following?" section with a Cronbach's Alpha of 0.61 and less than 0.70 if the Cronbach's Alpha if item were deleted. Low reliability for the SSB and sugary food section of the survey indicates a need to reformat the layout of that section of the survey. Another limitation for this survey was that all inter-item correlations for the frequency of physical activity and location of engagement in physical activity were below 0.15, indicating these items were not highly related in this questionnaire (Litwin, 2003).

Conclusions

The Health Assessment Needs of Kansas State Students Survey is intended to be a holistic health questionnaire for the students at KSU. The questionnaire would benefit from allowing a greater variety of races other than the ones provided as choice selection; White, Black or African American, Hispanic or Latino, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander. The questionnaire should include multiracial or Middle Eastern as options, too. The Health Promotion team produced a useful questionnaire that can provide beneficial information pertaining to health perceptions of students admitted to KSU. The Health Promotion team may use this assessment of the KSU students' health behaviors to establish, or reinforce, health programs to affect student health patterns during their college career at KSU, or

later in life. Having a holistic questionnaire to assess the needs of the college population is a step in the right direction to address health-related issues, while students are in a life stage of adaptation to changes in their academic workloads, social groups, support networks, and new found freedom from parents and other caregivers (American College Health Association, 2011). The THANKS questionnaire could be further enhanced to improve on the questionnaire layout, and to increase the clarity of the questions –It should, also, aim to improve on the definitions provided for physical activities, as well as include vigorous physical activity since that is recommended by the CDC for the age group of the college student population (CDC, 2016). Future steps for improvement should include a pilot study on a newly developed set of physical activity and nutrition questions to increase the reliability of those content sections. Although analysis for the current study included only the first two sections of the overall survey, physical activity and nutrition, it would be beneficial to complete a study on all sections of the instrument. It would also be beneficial to include more options that allow inclusion of the actual population at KSU to inform future health promotion work including programs and resources for the K-State University student population.

References

- American College Health Association. (2011). American College Health Association - National College Health Assessment II: New York University Executive Summary Spring 2011. Hanover, MD: Author.
- Bauman, A. E., Reis, R. S., Sallis, J. F., Wells, J. C., Loos, R. J., & Martin, B. W. (2012). Correlates of physical activity: Why are some people physically active and others not? *The Lancet*, 380(9838), 258-271.
- BrckaLorenz, A., Chiang, Y., & Nelson Laird, T. (2013). Internal consistency. FSSE Psychometric Portfolio. Retrieved from fsse.indiana.edu.
- Carlson, S. A., Fulton, J. E., Schoenborn, C. A., & Loustalot, F. (2010). Trend and prevalence estimates based on the 2008 Physical Activity Guidelines for Americans. *American Journal of Preventive Medicine*, 39(4), 305-313.
- CDC Features. (2016, June 09). Retrieved April 02, 2018, from <https://www.cdc.gov/features/yrbs/index.html>
- Clark, L. A. & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309-319.
- Centers for Disease Control and Prevention. (2017). *National Health Interview Survey*. Retrieved from CDC: National Center for Health Statistics: <https://www.cdc.gov/nchs/nhis/>
- Cotman, C. W., & Engesser-Cesar, C. (2002). Exercise enhances and protects brain function. *Exercise and Sport Sciences Reviews*, 30(2), 75-79. doi: 10.1097/00003677-200204000-00006
- DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd Edition). Thousand Oaks, CA: Sage Publications, Inc

Dinger, M. K., & Waigandt, A. (1997). Dietary Intake and Physical Activity Behaviors of Male and Female College Students. *American Journal of Health Promotion*, 11(5), 360-362. doi:10.4278/0890-1171-11.5.360

Jones, D. A., Ainsworth, B. E., Croft, J. B., Macera, C. A., Lloyd, E. E., & Yusuf, H. R. (1998). Who is meeting public health recommendations? A national cross-sectional study. *Archives of Family Medicine*, 7, 285-289.

Kelley, K. (2003). Good practice in the conduct and reporting of survey research. *International Journal for Quality in Health Care*, 15(3), 261-266. doi:10.1093/intqhc/mzg031

Litwin, M. S. (2003). How to assess and interpret survey psychometrics, 2nd edition. Thousand Oaks, CA: Sage Publications, Inc

McMillan, J. H. & Schumacher, S. (2001). Research in education: A conceptual introduction. New York: Longman.

National Prevention Council. (2011). National prevention strategy: America's plan for better health and wellness. Washington, DC: U.S. Department of Health and Human Services. Office of the Surgeon General.

Nelson, M. C., Story, M., Larson, N. I., Neumark-Sztainer, D., & Lytle, L. A. (2008). Emerging Adulthood and College-aged Youth: An Overlooked Age for Weight-related Behavior Change. *Obesity*, 16(10), 2205-2211. doi:10.1038/oby.2008.365

Ogden, C. L., Carroll, M. D., Curtin, L. R., McDowell, M. A., Tabak, C. J., & Flegal, K. M. (2006). Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA: The Journal of the American Medical Association*, 295(13), 1549-1555. doi: 10.1001/jama.295.13.1549

Sallis, J. F., Hovell, M. F., & Hofstetter, C. R. (1992). Predictors of adoption and maintenance of vigorous physical activity in men and women. *Preventive Medicine*, 21, 237-251.

Sallis, J. F., Calfas, K. J., Nicholas, J. F., Sarkin, J. A., Johnson, M. F., Caparosa, S., ... Alcaraz, J. E. (1999). Evaluation of a university course to promote physical activity: Project GRAD. *Research Quarterly for Exercise and Sport*, 70(1), 1-10.

Sitzia J. How valid and reliable are patient satisfaction data? An analysis of 195 studies. *Int J Qual Health Care* 1999;11:319-328.

Soft Drinks and Disease.” *The Nutrition Source*, 17 Mar. 2016, www.hsph.harvard.edu/nutritionsource/healthy-drinks/soft-drinks-and-disease/.

Sparling, P. B. (2003). College physical education: An unrecognized agent of change in combating inactivity-related diseases. *Perspectives in Biology and Medicine*, 46(4), 579-587. doi: 10.1353/pbm.2003.0091

Step toe A. & Wardle J. (2001) Health behaviour, risk awareness and emotional well-being in students from Eastern Europe and Western Europe. *Social Science & Medicine* 53, 1621–1630.

Step toe A., Wardle J., Pollard T.M., Canaan L. & Davies G.J. (1996) Stress, social support and health-related behavior: a study of smoking, alcohol consumption and physical exercise. *Journal of Psychosomatic Research* 41(2), 171–180.

Step toe A., Phil D., Wardle J., Cui W., Bellisle F., Zotti A., Baranyai R. & Sander man R. (2002) Trends in smoking, diet, physical exercise, and attitudes toward health in European university students from 13 countries, 1990–2000. *Preventative Medicine* 35, 97–104.

Stewart, J. A., Dennison, D. A., Kohl, H. W., & Doyle, J. A. (2004). Exercise level and energy expenditure in the TAKE 10! in-class physical activity program. *Journal of School Health*, 74(10), 397-400. doi: 10.1111/j.1746-1561.2004.tb06605.x

Streiner DL, Norman GR. *Health Measurement Scales: A Practical Guide to their Development and Use*. Oxford: Oxford University Press, 1995.

Whitehead, D. (2005). A response to D. Von Ah, S. Ebert, A. Ngamvitroj, N. Park & D.-H. Kang Predictors of health behaviours in college students. *Journal of Advanced Nursing* 48(5), 463-474. *Journal of Advanced Nursing*, 50(1), 111-112. doi:10.1111/j.1365-2648.2004.03342.x

Zaza, S., Briss, P. A., & Harris, K. W. (2005). *The guide to community preventive services: What works to promote health?* New York, NY: Oxford University Press.

Appendix A- Field Experience Report

Master of Public Health Field Experience Report

FIELD EXPERIENCE REPORT: LAFENE HEALTH CENTER

by

MAYRENA I. HERNANDEZ
MPH Candidate

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

Graduate Committee:

Mark Haub, PhD

Sara Rosenkranz, PhD

Richard Rosenkranz, PhD

Shawna Jordan, PhD

Field Experience Site:

Lafene Health Center, Manhattan KS

5/29/2017- 3/1/2018

Field Experience Preceptor:
Julie Gibbs, MPH

KANSAS STATE UNIVERSITY
Manhattan, Kansas

Copyright

MAYRENA I. HERNANDEZ

2018

Summary

In May of 2017, I met with Julie Gibbs, MPH, the director of the Health Promotions team at the Lafene Health Center with the desire to be involved in making an impact at the University during my Field Experience hours for the Master of Public Health requirements for Kansas State University. The Health Promotions Team and I began collaboration on a project with the goal to develop an effective Flu Campaign for the 2017-2018 Influenza Season. This campaign included how to effectively reach out to the university student and staff population with a social media presence which included photos, videos, and interaction with the Health Center and targeted population. In addition to the 2017-2018 Flu Campaign, collaboration with the Health Promotions team sparked interest in continuing to help and impact the students and staff of Kansas State University by better understanding what a University Health Promotions team does. Within their scope of practice I was able to discuss and put forth recommendations for their yearly health assessment survey, The Health Assessment Needs of Kansas State Students (THANKS) Survey. With further involvement on the 2016 and 2017 survey this sparked an interest on the validity of surveys and the impact they can make in a public health setting.

Subject Keywords: Influenza, university health center, health promotions, survey, needs assessment

Table of Contents

List of Figures.....	38
Acknowledgments	39
Field Experience	Error! Bookmark not defined.
Introduction	Error! Bookmark not defined.
Background.....	Error! Bookmark not defined.
Scope of Work	Error! Bookmark not defined.
Learning Objectives	Error! Bookmark not defined.
Activities Performed	Error! Bookmark not defined.
Products Developed	Error! Bookmark not defined.
<i>Fall 2017 Flu Campaign</i>	Error! Bookmark not defined.
<i>The Health Assessment Needs of Kansas State Students Survey</i>	Error! Bookmark not defined.
Alignment with Public Health Core Competencies	Error! Bookmark not defined.
Conclusions	Error! Bookmark not defined.
References	Error! Bookmark not defined.
Appendix A: Thesis Defense Presentation Slides	Error! Bookmark not defined.
Appendix B: THANKS Survey	Error! Bookmark not defined.

List of Figures

Figure 1: CDC FluTalk Poster.....	17
Figure 1.2 Lafene Health Center Walk-In Vaccine Clinic Poster.....	20
Figure 1.3 Lafene Health Center #FlightFluAt KSU Poster.....	21
Figure 1.4 THANKS Survey.....	24
Figure 1.5 THANKS Survey.....	25

Acknowledgments

I would like to express my gratitude to the faculty and staff of Kansas State University for their support and guidance during my graduate studies these past two years. To Dr. Haub, you have been an enthusiastic and supportive major professor to me. Thank you for taking time to mentor and more importantly teach me the importance of the process of research. I also wish to thank my committee, Dr. Sara Rosenkranz, Dr. Ric Rosenkranz, and Dr. Shawna Jordan for their support and advocacy on my need to get involved with this new project and truly allowing me to understand research and public health research in a clinical and statistical manner. Thank you Barta Stevenson, for constantly keeping an eye on me and my deadlines and guiding me through the MPH program the past two years. Thank you Dean Buckwalter for bringing me to Kansas State and sparking my interest in the MPH program and making it possible for me to fulfill my dreams not only as a clinician but as a researcher as well.

I am thankful to Kansas State University, the College of Human Ecology, the Health Promotions Department at the Lafene Health Center for supporting my research. I am grateful to Jesse Stein for your guidance and encouragement throughout my research.

To my friends and family, I am grateful for your constant support and belief in me in my career and future aspirations. You all constantly reminded me that going the distance would be well worth my while, and it surely has.

Field Experience

Introduction

In partial fulfillment of the Master of Public Health (MPH) degree, I completed 180 hours with the Health Promotions team at the Lafene Health Center through Kansas State University in Manhattan Kansas for my field experience. Lafene Health Center is a student health service that commenced at Kansas State University in 1913. Originally the Lafene Health Center was housed on the second floor of Anderson Hall which is now the main administrative building for Kansas State University. By 1920, the department of student health moved into an old two-story stone building that was built in 1866 and located near the northeast corner of what is now, present day, the University Power Plant. After World War I and II there was a surplus of military barracks which provided for the expansion of the student health center to a total of 80 beds and more space for the entire health staff, x-ray, laboratory, physical therapy, and an outpatient clinic. In 1958 a new facility named after Dr. Benjamin Lafene who was director of the health center from 1949-1961 was built adjacent to the campus library. This new facility contained 19 double bed rooms and two single occupant rooms with modern facilities housing all necessary ancillary services and a clinic for outpatients. By 1987, the hospital portion of the health center was closed due to declining use and with an increase in ambulatory services. In 1989, this led to the first time in the health center's history to appoint a non-physician as a director for the student health center. In addition to this change, a medical director was appointed to oversee medical care provided by

the health center staff. In 2003, the health center relocated once again to Mercy Regional Health Center on the west side of campus. In present day, the Lafene Health Center has over 70 staff which include 6 full-time physicians with a team of medical and clerical support personnel. The Health Center on average serves over 300 students each weekday during the fall and spring semester. The Lafene Health Center is professionally accredited as an outpatient healthcare facility by the Accreditation Association for Ambulatory Health Care where in order to meet this accreditation has undergone rigorous clinical and management standards. The Lafene Health Center has been accredited by the Joint Commission on Accreditation of Healthcare Organizations continuously since 1968. Financial structure of Lafene Health Center is operated and budgeted entirely by the Kansas State University students through a mandatory, per student, per credit hour support fee included in the students of Kansas State University tuition and through a fee for service charges for ancillary services. Lafene Health Center has 13 departments which include Administration, Records and Registration, Clinical Laboratory, Environmental Services, General Outpatient Clinic, Health Promotion, Nutrition Counseling, Pharmacy, Physical Therapy and Rehabilitation, Radiology, Sports Medicine, Psychiatric Counseling and Women's Clinic.

The mission of Lafene Health Center aligned with the core requirements of Kansas State University's master of public health program. This involved utilizing the quality resources, having a medical staff that is capable of offering a comprehensive, high quality, easily accessible, affordable outpatient health care service to the student community at Kansas State University. In addition to these services, the Kansas State

Health Center not only cares for the sick and injured, but is a resource and an advocate for health education, promotion, and wellness.

The principles involved with the primary function of the Student Health Center at Kansas State University are developed to provide a medical facility that offers many outpatient medical needs in the University, which requires cooperation of the University elements such as administration, the faculty, the non-teaching personnel, the students, and the many non-campus agencies. For the principles of the health center, it is very clearly stated that their student health program assists in providing quality medical care to the individual student attending the University in the matter of outpatient care for illness, immunizations and health education. The second principle for the health center is to assist other University departments in providing a health environment such as having an Infectious Disease Advisory Committee, Campus Safety, and a CARE office. The third principle is to provide the opportunity for health education in the manner of either classroom instruction, one on one contact in the clinic through consult, articles on health in University newspapers. The fourth principle is to consult and actively participate with the WellCAT Ambassadors whose actives include providing a liaison between the student body and the University Health Center. Lastly, the fifth principle revolves around providing the opportunity through the WellCAT Ambassadors to have a better understanding of the Student Health Program at the University Health Center. This mission and the five principles are all to ultimately provide and promote health care and wellness effectively and efficiently to the students of Kansas State University in cooperative efforts with other resources in the university community and general community.

Within the Lafene Health Center, I directly worked with Julie Gibbs, MPH, the director of the Health Promotion Department for my field experience. Julie Gibbs is an alumnus of the Master of Public Health program here at Kansas State. Mrs. Gibbs's responsibilities at the University Health Center are numerous, but all revolve around the mission of the Health Promotion Department. Of the up most important responsibilities are to provide leadership in health maintenance and wellness promotion as well as disease/illness prevention for the Kansas State University students, staff, faculty, and surrounding community members. At the time I was seeking a field experience, I learned of Julie Gibbs's position at the due to my relationship with the sports medicine team at Lafene, since I am a graduate assistant athletic trainer for the track and field team at Kansas State. After meeting with Mrs. Gibbs, I immediately knew it was a good fit for my research and field experience interests. The services that the Health Promotion team provide include smoking cessation consultations, CPR training, health resource center, college courses for credit, peer health education through the WellCAT Ambassadors, presentations on health topics, and student learning objectives and assessment plan. Within the health resource center are: bulletin boards, listervs, twitter, brochure/pamphlets, and internet resources. The college courses for credit provided by the team include: EDCEP 103 Healthful and Safe College Life, EDCEP 311 Interaction and Guidance for Paraprofessional, which are all offered as Kansas State University credit courses.

Background

In 2016, a needs assessment for the students of Kansas State University was conducted by the Health Promotion team at the Lafene Health Center. The purpose of the needs assessment survey is to evaluate the overall health status of the on-campus students at Kansas State Manhattan campus. The needs assessment involved the administration of a survey to the Kansas State University student community (freshman – graduate students) registered at the Manhattan Campus. The questionnaire was distributed to a randomized sample of students through the use of their university emails. Gathering information was made possible through the use of the Kansas State University Qualtrics system and statistical analysis help through the Kansas State University Statistical Consulting service through the Department of Statistics. The needs assessment survey was a compilation of data coming from a holistic approach focusing on physical activity, nutrition, tobacco use, mental health, general health, social determinants of health, and sexual health that were the university health center's main concerns for their patient population. The resultant report of the findings of The Health Assessment on Needs of K-State Students of the 2016 Fall semester was used by the Health Promotion team and appropriate entities within the Lafene Health Center.

Scope of Work

My duties at the Lafene Health Center with the Health Promotions department involved working within the community, and connecting with community partners in order to develop, implement, and assess programs aimed at promoting healthy behaviors with the students of Kansas State University. Throughout the field

experience, I completed various tasks and activities all related to the university community health. Specifically, the first task I was responsible for was developing materials for specific programs such as the Fall 2017 Flu Campaign. The second task I was given was to conduct research with the follow up for The Health Assessment on Needs of K-State Students for Fall 2017 and Spring 2018. Another responsibility was to generate ideas for additional ways to address the health needs of Kansas State University students based on the 2016 needs assessment survey.

Learning Objectives

There were many learning objectives that I created with the Health Promotion department at Lafene. First, I wanted to understand how to organize and implement a campaign that served the student and staff population of Kansas State University. I wanted to fully understand all the Health Promotion Department did for the Kansas State University community.

Secondly, I wanted to understand the proper way to conduct research on implementing a campaign/ program and plan with multiple entities on campus. This mainly included the objectives of increasing influenza vaccinations and to decrease the number of students with influenza symptoms at Kansas State University. These learning objects were met by performing qualitative research on influenza, planning for the influenza campaign, communicating with the necessary parties who could contribute and benefit the campaign, designing an effective campaign to reach all students and staff at Kansas State University.

Third, I wanted to recognize how important the Needs Assessment Survey on Kansas State Students is for the Health Promotion department because of how the survey determines the campaigns and programs implemented for the next school year. With this third objective this sparked my interest in my MPH thesis on the importance of a valid survey.

Lastly, I wanted to gain a better overall understanding of community-based health programs and campaigns. As an Athletic Trainer, much of the work I do with the Kansas State Cross Country/ Track and Field teams is clinically based, but I know that there is a need for Athletic Trainers to be used in a manner that is more public health related. I firmly believe that Athletic Trainers are well positioned to reach out to communities regarding preventative services and provide community education on several health matters. With my Field Experience at the Lafene Health Center, I wanted to gain experience and knowledge regarding how to best implement public health practices. The KSU Sports Medicine team, and the University Health Center not only care for the KSU athletes, but also the students and staff of KSU. I have learned that healthcare can look beyond the standard approach of treating the problem when it has already occurred. The clinicians and faculty I have worked alongside have emphasized that using preventative measures and establishing programs that not only help the person in time of injury, but also before and after the occurrence, can resonate with the patient to impact their entire life. This impact may extend to activities of daily living, quality of life, and physical activities in their job setting or hobbies. This approach has helped shape me as a better clinician, focusing on preventative measures and a whole-person healthcare provider with my athletes as well as in my thought process as I

design my master thesis with the support of the University Health Center at KSU that will be implemented to create new programs based of the needs of the students and staff of KSU.

Activities Performed

With my first task of the Fall 2017 Flu Campaign, I collaborated with the Health Promotions team to brainstorm on how to improve the flu campaign for the year. To begin working on this campaign, I needed to better understand influenza. Working on the Fall 2017 Flu Campaign fulfilled some of my learning objectives I wanted to achieve during my time at this MPH field experience site. This was done by performing qualitative research on influenza and how the CDC determined their recommendations for the respective flu season.

Influenza is a contagious respiratory illness caused by the influenza virus. It can be a mild to severe illness but sometimes with some serious outcomes of the flu it can result in hospitalization or death especially for the older, younger, and a certain health conditions population who are at a higher risk for serious flu complications. It is stated on the CDC website that the best way to prevent the flu is by getting vaccinated each year. Each year influenza is spread mainly by tiny droplets made when people with the flu cough, sneeze, or talk. These droplets can then infect people nearby if the droplets land in their mouths or noses but less often a person can get the flu by touching a surface or object that the flu virus has contaminated and then the person touches their own mouth, nose and even possibly infect their eyes by rubbing them. Signs and symptoms of the flu are often some or all of the following and can start suddenly or

gradually. Signs and symptoms of the flu can include fever, cough, sore throat, runny or stuffy nose, muscle or body aches, headaches, fatigue, and even vomiting or diarrhea but that is more common in young children than in adults. It is important to note that not everyone with the flu will have a fever with their signs and symptoms.

For this flu campaign, I, also, needed to understand the period of contagion. With the flu, a person can pass it on to someone else before they even know that they are sick. People with the flu are the most contagious in the first 3-4 days after their illness begins and even in some healthy adults may be able to infect others beginning one day before symptoms develop and up to 5-7 days after becoming sick. This holds the most true with young children who have weakened immune systems and might be able to infect others with flu viruses for a longer amount of time (CDC, 2018.)

In addition to facts about the flu, I also needed to apply the epidemiological aspect of influenza to my research. With Influenza A and B they are two different types of influenza that cause epidemic human disease. Both A and B viruses can spread further into subtypes; type A virus it is characterized by two surface antigens which are hemagglutinin (HA) and neuraminidase (NA). Globally, Influenza A(H1N1), A (H3N2) and B co-circulate and can have mutating and recombining viruses.(CDC, 2018) This results in frequent antigenic change that is what causes seasonal epidemics and the reasoning for adjustment of the vaccine viruses each season. The annual influenza epidemic in the United States usually occurs between October and April, when all ages are susceptible. Data from the Influenza Surveillance Project (IISP) which covered the 2009-2010 through 2012-2013 season showed that the highest rates of outpatient visits for influenza were among children ages 2-17 years and with hospitalizations and deaths

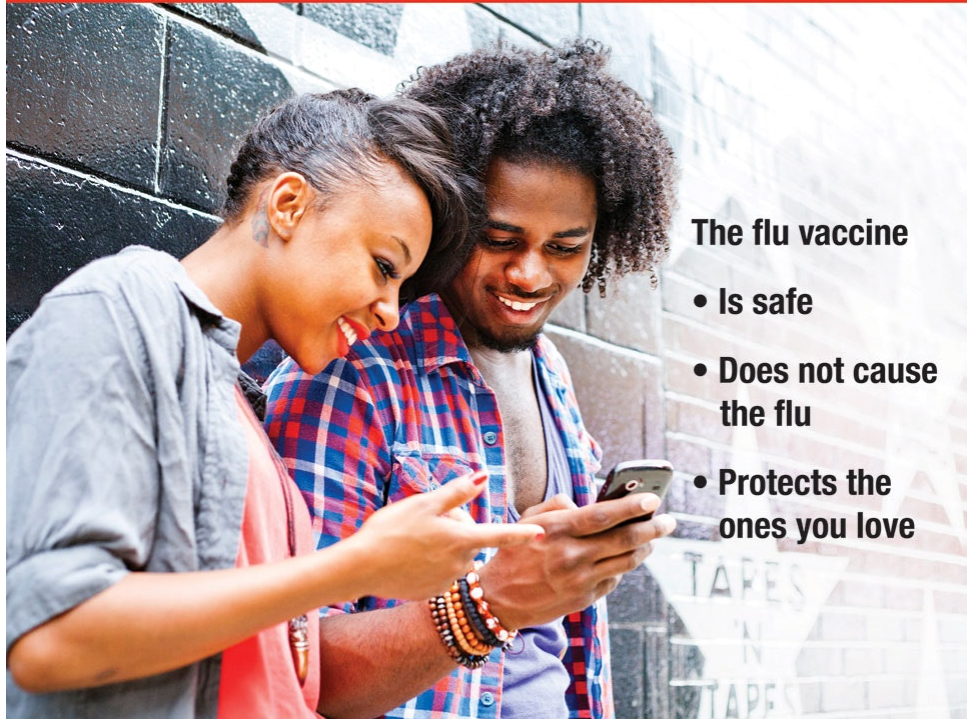
related to seasonal influenza affecting the greatest at around the ages of greater than or equal to 65 years old and children less than five years of age.

With the 2017-2018 report the recommendations given by the Advisory Committee on Immunization Practices use of the seasonal influenza vaccine (MMWR Recomm Rep 2017;66[No.RR-2: 1-20]) is recommended to all person ages of greater than or equal to age six months (6-59 months) and adults ages greater than or equal to 50 years old who do not have contraindications. It is also recommended for people with chronic pulmonary, cardiovascular, renal, hepatic, neurologic, hematologic, or metabolic disorders even including diabetes mellitus. Included on the recommended list are women who are or will be pregnant during the influenza season.

After considering the need of an influenza campaign, we decided on a goal of reaching 1800 vaccinations. In order to achieve this goal and have a successful campaign, we discussed as a committee how to best use the power of social media. I had the idea of making the previous flu campaign poster more university student friendly. Prior to my poster, the CDC with two young adults on their phones that represented them getting informed on the influenza vaccine was utilized as promotional materials. I wanted to take this concept but make it more university friendly and geared towards the students and staff of Kansas State University. Someone who is well known at Kansas State University and embodies the spirit of the university is the university mascot, Willie the Wildcat.

flutalk

Get the facts



The flu vaccine

- Is safe
- Does not cause the flu
- Protects the ones you love

Spread the word and
Get VACCINATED!



For more flu facts go to
www.cdc.gov/flu
800.232.4636



Figure 1: CDC FluTalk Poster

Products Developed

Fall 2017 Flu Campaign

Within my first task of organizing the Fall 2017 Flu Campaign, I headed the project of getting Willie the Wildcat to be part of our new Influenza awareness poster that would be posted on social media such as Instagram, Facebook, and Twitter. Through this process, I was able to get in touch with the cheer team at Kansas State who is in charge of Willie attending university and community events. The cheer coach was more than happy to send one of the Willie Mascots to the Lafene Health Center for a photo session to be able to pick and choose the best photos representing the beloved mascot receiving a flu vaccines and other services at the University Health Center for future use of images for other programs to come. The finished photos were then included on the poster for the Flu Vaccine Walk-in clinic with its dates, hours, location, and costs. We wanted to focus on a simple poster that had the necessary information, but not an over abundance of information that it overwhelmed the students and staff of Kansas State University. The Health Promotion team wanted the focus of the poster to be on Willie the Wildcat enjoying his visit at the University Health Center and making sure he was taking this preventative measure to stay healthy. (Figure 1)

In addition to the Willie poster, we posted weekly social media giveaways as an incentive for getting your flu shot at the Lafene Health Center. We did this with the intention of meeting the 1800 vaccines goal for the Fall 2016 Flu Campaign. The rules were explained in the social media poster with the first being to “Snap a selfie of you fighting the flu.” The person (student or staff member) who wanted to participate in the

giveaway would need to be wearing the sticker that was given to them after receiving the influenza vaccine that said “#FightFluAtKSU.” The participant in the giveaway took a selfie while they either ate something healthy, were engaging in physical activity or anything else that displayed how they were combating influenza that season in addition to being vaccinated. Their photo would then need to be shared on Facebook, Twitter, or Instagram with the hashtag “#FightFluAtKSU.” Each photo submission that followed the rules and guidelines would earn the person a spot in the weekly giveaway raffle which could be a prize such as a Kansas State water bottle, gift cards to the university café, etc.

WALK-IN FLU VACCINE CLINIC
For students and faculty/staff

Sept. 25-Dec. 1
Hours: 8:30-11:30 a.m. and 1-4 p.m.
Monday-Friday
No appointment needed.

Cost is covered by most insurance companies.
Students — \$22; Faculty/Staff — \$25

LAFENE+
HEALTH CENTER
1105 Sunset Ave.
785-532-6544
For K-State, By K-State

KANSAS STATE
UNIVERSITY

Figure 1.2 Lafene Health Center Walk-In Vaccine Clinic Poster



Figure 1.3 Lafene Health Center #FlightFluAt KSU Poster

As previously stated, the objective of the flu campaign was to reach the goal of giving out 1,800 influenza vaccines to the students and staff of Kansas State University. In the 2017-2018 season as of February 11th, 2018 the Lafene Health Center has administered 1860 influenza vaccinations compared to the 2016-2017 season which was from September 2016 to the end of March 2017 with a number of 1,914

influenza vaccinations given. According to the Center of Disease Control and Prevention, the new flu information for 2017-2018 consisted of getting an annual flu vaccine is the first and best way to protect yourself and your family from the flu as well as making sure to visit the doctor, miss work or school if you have any symptoms. A recent study in 2017 in Pediatrics showed that flu vaccination is the first way to significantly reduce a child's risk of dying from influenza (CDC 2018.) It stressed that the more people who get vaccinated will lead to more people being protected from the flu, which includes older and younger children as well as pregnant women and people with long term health conditions who are more at risk for having complications with the flu.

The Health Assessment Needs of Kansas State Students Survey

My second objective led to my thesis work. My objective was to understand what the Health Promotions Team at Lafene Health center did to create programs for the University. With this objective I was given the task to understand and recommend changes to the 2016 The Health Assessment Needs of Kansas State Students survey. This survey serves as a foundation of knowledge for the Health Promotions team because they create programs for the University and its students. The purpose of the survey is to use it as an assessment of the overall health of on-campus students and Kansas State University where that data will be received to guide the health and wellness services and outreach efforts so that they can appropriately align with the student's needs. The programs that have been created have involved college courses such as Healthful and Safe College Life as well as Interaction and Guidance for the Paraprofessional (WellCAT Ambassadors training course). During my time with my field

experience with The Health Promotions team at Lafene Health Center, I was able to learn how they researched and based their survey for Kansas State University students on the American College Health Association-National College Health Assessment survey tool, but did not use their services. The THANKS web-based survey was distributed through Qualtrics, where I helped make recommendations from the Fall 2016 survey to the Fall 2017 survey. These were only minor adjustments on categorical questions for glasses of water, and future recommendations on how to separate physical activity variables of moderate-intensity exercises, flexibility/stretching, and strength/resistance training questions versus being grouped together. My thesis focused on having the best recommendations to further improve the established research survey tool the Health Promotions team at Lafene Health Center is set to use for the Kansas State University student population as a longitudinal study for future use. The figures 1.4 and 1.5 describe some of the statistics ran on the Fall 2016 survey and what would be most attractive to display on the Lafene Health Center Health Promotions page for students, parents, and community members to know about the university and what the Health Promotions team is wanting to improve for future student generations at Kansas State University.

THE HEALTH ASSESSMENT ON NEEDS OF K-STATE STUDENTS (THANKS) SURVEY

The purpose of this survey is to assess the overall health status of on-campus students at the Manhattan campus. The Kansas State University Lafene Student Health Center will use the data received to guide our health and wellness promotion services and outreach efforts so that they may appropriately align with the students' needs.



PHYSICAL ACTIVITY

- Over 75% of students say they participate in at least 30 minutes of "moderate-intensity" activity at least 3 days a week
- About 58% of students say they participate in strength or resistance training exercise at least 2 days a week
- About 35% of students use the K-State Recreation Center for physical activity, while 26% do so at home
- Students list "I don't have enough time" and "lack of motivation" as the top two reasons for not exercising



HYDRATION

- About 45% of students say they drink 5-8+ cups of water (8 oz) each day



NUTRITION

- 183 out of 318 students admit to eating out once a week
- Over 75% of respondents say they prepare their meals at home at least 4 times a week
- Students list "nutritious food costs too much" and "not having enough time to prepare meals and snacks" as top reasons for not making healthy food choices
- About 66% of respondents say they do not eat at least 2 servings of fruits and 3 servings of vegetables on a daily basis
- Top three reasons students don't consume 2 servings of fruits and 3 servings of vegetables daily: 1) high cost, 2) lack of time to purchase and prepare, 3) dislike some or all fruits and vegetables

Lafene Health Center, Health Promotion Department

Figure 1.4 THANKS Survey



NUTRITION

- About 20% students report having "had a concern about not having enough food for you/your family to eat"
- About 26% of 450 students surveyed consume sugar-sweetened beverages (i.e. soda, sweet tea, fruit punch) multiple times weekly
- About 34% of these students consume pastries, cakes, cookies multiple times weekly



MENTAL HEALTH

- Over 70% of students categorize their mental health as "good" or "very good"
- About 50% of the students would either talk to their family and friends or would use K-State Counseling Services to talk about their mental health wellness
- About 58% of the students reported that they would consult a mental health professional when needed
- Top three needs related to mental health at K-State: 1) Affordability of mental health services, 2) Awareness about mental health education and prevention efforts, 3) Increase awareness to decrease stigma



SOCIAL HEALTH

- Top three needs related to social issues in the K-State community: 1) Employment, 2) Housing options, 3) Availability of mental health services



GENERAL HEALTH

- Over 70% of students use the internet to get most of their health-related information, followed by friends and family and their own healthcare providers
- About 56% of the students surveyed would go to Lafene Health Center when sick while attending K-State
- 82% of the students will consult a medical professional when sick
- Only about 1/3 of the students have received the flu shot in the past 12 months
- About 2/3 of the students surveyed report having 6-7 hours of sleep per night
- Top three needs related to physical health at K-State: 1) Access to healthy food options, 2) Affordable health services, 3) Facilities for physical activity

Lafene Health Center, Health Promotion Department

Figure 1.5 THANKS Survey

Alignment with Public Health Core Competencies

Throughout my thesis research and field experience, I gained insight in each of the public health core competencies. This insight was beyond what can be taught in a classroom because I was truly able to experience the competencies first hand.

One essential competency that I still think needs to be improved is **biostatistics**. Although I did fairly well in the class, being able to assemble it in field experience work for the flu campaign, or apply all those lessons to my thesis statistics it is far more difficult to compile the data, sort through it and have discipline and critical understanding of what that information and descriptive data truly means for my research question. For my research study, I needed to be able to report vital statistics, records, public health descriptive and distinguish between statistical measures. In addition, it was essential to incorporate, analyze, and interpret the results of the literature review. As my study went on, my biostatistics skills improved as I had a greater understanding of research in the topic of interest, and I was able to understand why a certain statistical method was most appropriate and when it should and should not be utilized in each circumstance.

The second core competency, **environmental health**, aligned well with the work that is done in the Health Promotions Department at Kansas State University. Environmental health comprises those aspects of human health which include quality of life, that are determined by physical, chemical, biological, social, and psychosocial factors in the environment. The Health Promotions Department at Kansas State University strives to assess, correct, and control to prevent these factors in the environment from potentially affecting the health of present and future students and staff

of Kansas State University. I explored the environmental health factors that went into their decision making on current and future programs for the University Health Center.

The application of **epidemiological** principles was also essential to my work with the Flu Campaign and in writing my thesis. Understanding data from my thesis health survey and how the various possible reasons that data presented itself was necessary to comprehend the scope of these potential problems for the students and staff at Kansas State University or at any University and its crucial health centers that keep them healthy or strive to keep them healthy. Epidemiological knowledge was also crucial for my selection and understanding of literature. It helped me understand the limitations of the available data in my research focus and the public health focus of my field experience with the University Health Promotions Department.

Health service administration was a huge impact in my study and field experience because ultimately the Health Promotions Department wanted to make healthcare accessible to all different classes, genders, ages, etc. and learn how to address such issues when they have been made apparent via public health. It is one thing to know the problem and another to actually engage the population to take notice on the public health issue that needs to be addressed.


Lastly, with the **social and behavioral science** competency, it was an approach to not put the blame on the person themselves but to try to understand why a person would not go get vaccinated for influenza or more focused on my research is perhaps why a person might not engage in physical activity or why they might consume more sugar sweetened beverages as they continue in their college career. A good reference point for a health survey research study or a health promotions team is the Ecological

Approach model. I was able to learn about this model throughout my time in the Master of Public Health degree and it has been an approach that I think of constantly and is the root for my thesis since health care is not just one aspect but affected by multiple things that can impact social and cultural elements of the environment effecting someone's health. It was also important to consider the cultural component of social and behavioral factors since my research for University health shows that there may be profound implications for a student's health status during their educational career.

Conclusions


Since the start of my public health degree, I did not truly know what to expect. I knew that this degree would help me with my ultimate goal of being able to advocate for various populations in the health care setting as a certified Athletic Trainer. With a Public Health degree, I will be able to provide more to the community than just the clinical work that an Athletic Trainer provides. As an Athletic Trainer, I am a healthcare professional who collaborates with physicians and the services I provide encompass prevention, emergency, care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions. Athletic Trainers are highly qualified, multi-skilled health care professionals that are under the allied health professions category. I believe that this branch of health care can be a huge contributor to the public health area where Athletic Trainers can expand their professional focus beyond the individual to the population level.

Appendix B- Thesis Defense Presentation Slides




THE HEALTH ASSESSMENT ON NEEDS OF K-STATE STUDENTS

Mayrena I Hernandez
Master of Public Health Candidate
Kansas State University




OVERVIEW

- The Health Assessment Needs of K-State Students:
 - The college transition
 - THANKS survey background
 - Background Survey
 - THANKS survey analysis and recommendations
- Field Experience: Latana Health Center:
 - History
 - Present day
 - Health Promotion/nutrition counseling
 - Scope of work
 - Learning objectives
 - Activities performed
 - Alignment with public health core competencies




THE COLLEGE YEARS: AN OPTIMAL TRANSITIONAL PHASE IN LIFE




- Entering college: exciting yet stressful
 - Adapting to new academic workloads
 - New social group and support networks
 - New environment and self-responsibility
- Physical activity
 - Nutrition
 - College students fail to meet current physical activity and dietary recommendations

(Sources for Disease Control 1995, Singer & Wilgus 2003, Singer 1999, Saper et al. 2003)




VARIABLES: PHYSICAL ACTIVITY AND NUTRITION

- Physical activity:**
 - 30-35% of college aged students are obese or overweight. *(Pewen, Holmgren, Dufre 2013)*
 - Obesity in US college-aged population has increased from 12% in 1991 to 34% in 2004. *(Spence et al 2005)*
 - Only 45% of adults get the recommended 30 minutes of physical activity on 5 or more days per week and adolescents are similarly inactive. *(Dow et al 2005)*
 - 81-85% of adults continue the same physical activity patterns that they establish during their senior year of college. *(Dow et al 2005)*
- Nutrition:**
 - On average, college students eat at fast-food restaurants 1 to 3 times per week. *(Pewen et al 2008)*
 - A majority of young adults ages 20-29 years consume less than 1 serving a day of fruit (males 43%, females 59%) and vegetables including potatoes (males 19%, females 20%). *(Singer et al 1998)*




UNIVERSITY SUPPORT


- Special opportunity to tackle the problem(s) of obesity and nutrition on campuses
 - Type-2 diabetes
 - Hypertension
 - Dyslipidemia
 - Chronic disease
- Opportunity to reexamine lifestyle choices
 - Encourage students to improve eating and exercise habits
 - Implement healthful changes
 - Provide a supportive environment: good food choices, multiple options for physical activity, pedestrian-friendly campuses *(Dow et al 2005)*



HEALTH PROMOTION/NUTRITION COUNSELING AT K-STATE


- To provide leadership in health maintenance (wellness) promotion and disease and illness prevention for Kansas State University students, staff, faculty, and surrounding community members
 - CPR certification course
 - Health and wellness presentation
 - Health resource center
 - Internet resources
 - Walk/Run Ambassadors
 - Social media presence






THE HEALTH ASSESSMENT NEEDS OF K-STATE STUDENTS (THANKS)

- Assess the overall health status of on-campus students at K-State
- Self-reported through Qualtrics
- Randomly chosen K-State Student through university email
- Use data received to guide health and wellness services and outreach efforts so that they may appropriately align with the student's needs.



THE HEALTH ASSESSMENT NEEDS OF K-STATE STUDENTS (THANKS)




FALL 2016

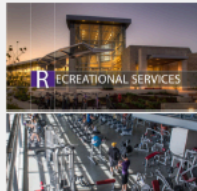
THE HEALTH ASSESSMENT ON NEEDS OF K-STATE STUDENTS (THANKS) SURVEY

The purpose of this survey is to assess the overall health status of on-campus students at the Manhattan campus. The Kansas State University Lafene Student Health Center will use the data received to guide our health and wellness promotion services and outreach efforts so that they may appropriately align with the student's needs.

- Physical Activity
- Hydration
- Nutrition
- Tobacco use
- Mental Health
- Social Determinants of Health
- Sexual Health
- General Health
- Demographics



THANKS 2016 PHYSICAL ACTIVITY



RECREATIONAL SERVICES


- Over 75% of students say they participate in at least 30 minutes of "moderate-intensity" activity at least 3 days a week
- About 35% of students use the K-State Recreation Center for physical activity, while 26% do so at home
- Students list "I don't have enough time" and "lack of motivation" as the top two reason for not exercising



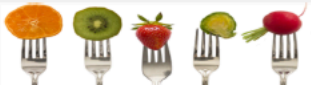
THANKS 2016 NUTRITION




- Students list "nutritious food costs too much" and "not having enough time to prepare meals and snacks" as top reasons for not making health food choices
- About 66% of respondents say they do not eat at least 2 servings of fruits and 3 servings of vegetables on a daily basis



THANKS 2016 NUTRITION




- Top 3 reasons students do not consume 2 servings of fruits and 3 servings of vegetables daily: 1) high cost, 2) lack of time to purchase and prepare, 3) dislike some or all fruits and vegetables
- About 20% students report having "had a concern about not having enough food for you/your family to eat"
- About 34% of these students consume pastries, cakes, cookies, multiple times weekly




BACKGROUND: SURVEY


- Surveys are most common in studies of health and health services, although its roots lie in social surveys to collect information on poverty and working class life.
- Surveys remains most used in applied social research



Charles Booth




Joseph Rowntree




SURVEY STUDIES, A USEFUL TOOL IN HEALTHCARE

- Descriptive studies: real world observations to generalize population of interest (empirical data)
- Large amount of data in a short amount of time
- Fairly low cost
- Time specific



DISADVANTAGES WITH SURVEY RESEARCH


- Can lack details or depth, not the full picture
- The design and development of the research tool must be as optimal as possible
- Low response rate
- Large sample is required



DESIGNING THE RESEARCH TOOL


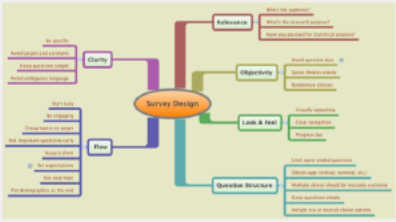
- The questions asked have to be carefully planned and piloted
- The design, wording, form, and order of the questions can affect the type of responses obtained
- Minimize bias in results

- Planning the content of a research tool: content validity
- Questionnaire layout
- Interview questions
- Piloting
- Covering letter



QUESTIONNAIRE LAYOUT

- Should be clear and well presented
- Upper case letters only should be avoided: hard to read
- Questions should be numbered and clearly groups by subject
- Clear instructions given and headings included to make questionnaire easier to follow
- Avoid double-barreled questions, double negatives, leading or ambiguous questions
- Questions may be open or closed

Survey Design Tree Diagram (2017, July 18)



SURVEY RESEARCH: BRIDGING THE GAP

- Significant gap persists between the quest for new clues to solve the college health puzzle involved in diet, exercise, and behavioral change
- Poorly constructed or too long of surveys may result in low response rates, missing data and misleading results



THE PURPOSE

- The purpose of this study was to assess the survey tool the Health Promotions team has used for the Fall 2016 and Fall 2017 student population at Kansas State University



OUTCOME VARIABLES

- To describe the multidimensional characteristics of life among college students and health at Kansas State University
- To examine the relationship among physical activity, nutrition, college class, gender, race within the college population at Kansas State University
- To examine the predictability, construct validity, and reliability of survey research done by the Health Promotion/Nutrition Counseling team at Kansas State University



METHODS

- Data from the Fall 2016 THANKS survey and the Fall 2017 THANKS survey: +900 participants merged
- Only slight changes with water consumption ranges
- Added financial planning
- Sections analyzed:
 - A: Physical Activity
 - B: Nutrition
- H: Demographics: sex, gender, class, residence



THANKS 2016 & 2017 PHYSICAL ACTIVITY

- Physical activity was measured via self-report responses to questions related to frequency and intensity of moderate-intensity activity, strength training, and flexibility or stretching exercises, where they engage in physical activity, as well as barriers as to why a person does not engage in physical activity

Section A: Physical Activity

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. (World Health Organization)

The questions in this section will inquire about your personal physical activity habits.

1. Do you participate in at least 10 minutes of "moderate intensity" activity (you are able to talk, but not sing), strength or resistance training, aerobic flexibility or stretching exercises?



THANKS 2016 & 2017 NUTRITION

- Nutrition in the health assessment survey focused on inquiring the individual about their personal nutrition/dietary habits

Section B: Nutrition

Nutrition is defined as the intake of food, considered in relation to the body's dietary needs. (World Health Organization)


The questions in this section will inquire about your personal nutrition/dietary habits.

1. How many glasses of water (8 oz) do you drink in a day?




DATA ANALYSIS

- IBM SPSS Statistical Software will be used to analyze sample data
- Readability analysis: Flesch Reading Ease and Flesch-Kincaid Grade Level Readability
- Descriptive statistics: total sample, subsample of male and females, and other demographics such as class
- Questionnaire layout: reliability analysis: Cronbach's Alpha and Cronbach's Alpha if deleted
- Inter-item correlation: Internal validity of question content and amount
- Relationship between nutrition and physical activity at Kansas State University: predictable, valid: compare means



THANKS 2016 & 2017 DEMOGRAPHIC VARIABLES


- Gender
- Classification at K-State
- Race/Ethnicity
- Age range
- Residence
- Domestic or international student
- Part-time or full-time student
 - Combined: 809 participants
 - 269 M, 540 F mostly white, freshmen, living off campus, and enrolled full-time at KSU



THANKS 2016 & 2017 DESCRIPTIVE DIFFERENCES

Demographic Variable	2016	2017
Gender	269 M, 540 F	269 M, 540 F
Classification at K-State
Race/Ethnicity
Age range
Residence
Domestic or international student
Part-time or full-time student


Demographic Variable	2016	2017
Gender	269 M, 540 F	269 M, 540 F
Classification at K-State
Race/Ethnicity
Age range
Residence
Domestic or international student
Part-time or full-time student



THANKS 2016 & 2017 DESCRIPTIVE DIFFERENCES


Demographic Variable	2016	2017
Gender	269 M, 540 F	269 M, 540 F
Classification at K-State
Race/Ethnicity
Age range
Residence
Domestic or international student
Part-time or full-time student

Demographic Variable	2016	2017
Gender	269 M, 540 F	269 M, 540 F
Classification at K-State
Race/Ethnicity
Age range
Residence
Domestic or international student
Part-time or full-time student



THANKS 2016 & 2017 READABILITY ANALYSIS


- Flesch Reading Ease:
 - RE=206.835- (1.015 x ASL)- (84.6 x ASW)
- Flesch-Kincaid Grade Level Readability Formula:
 - FKRA = (0.39 x ASL) + (11.8 x ASW) - 15.59
- Fall 2016 and Fall 2017 THANKS survey resulted in a Flesch Reading Ease score of 70.3 indicated the THANKS survey is fairly easy to read and with a Flesch-Kincaid Grade Level score of 5.2 indicated the reader's age of fifth graders



THANKS 2016 & 2017 RELIABILITY ANALYSIS

Physical Activity:

- "How many times do you participate in at least 30 minutes of "moderate intensity" activity (you are able to talk, but not sing) in a week?"
- "How many times do you do strength or resistance training exercises in a week?"
- "How many times do you do flexibility or stretching exercises in a week?"
- "I do not participate", "1 day", "2 days", "3 days", "4 days", "5 or more days"
- "Where do you go to exercise or engage in physical activity? Select all that apply"



THANKS 2016 & 2017 RELIABILITY ANALYSIS

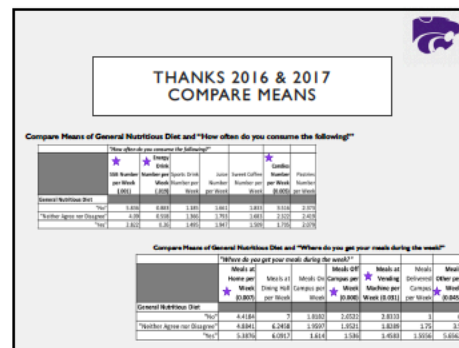
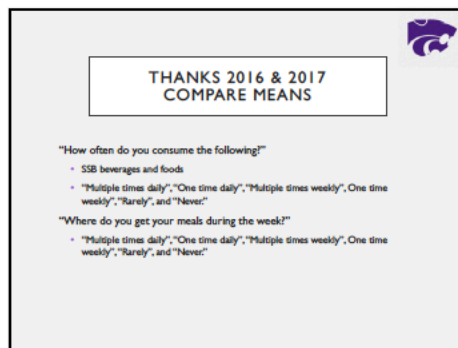
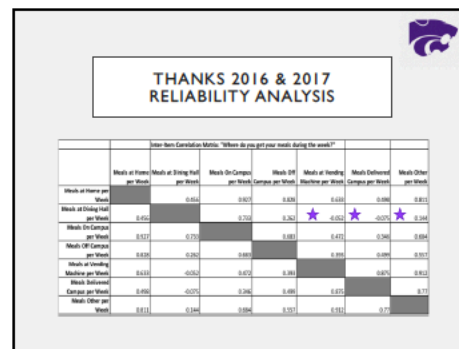
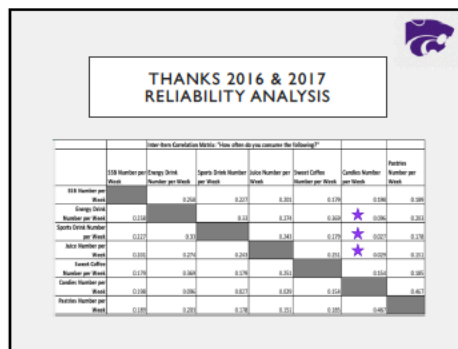
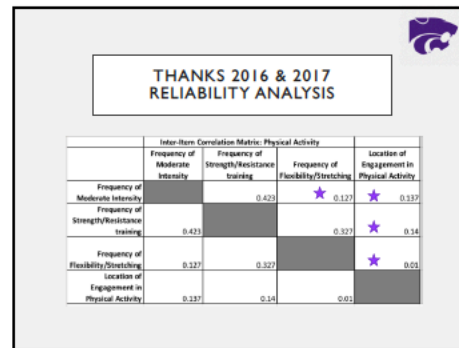
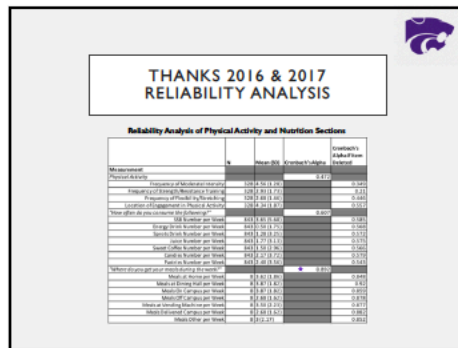
"How often do you consume the following?"

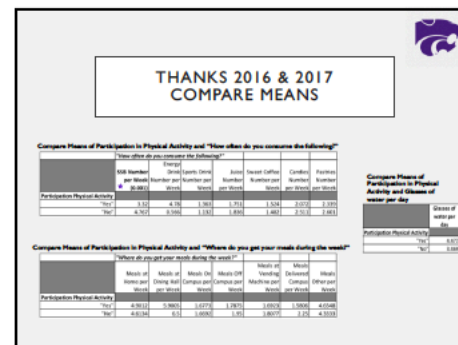
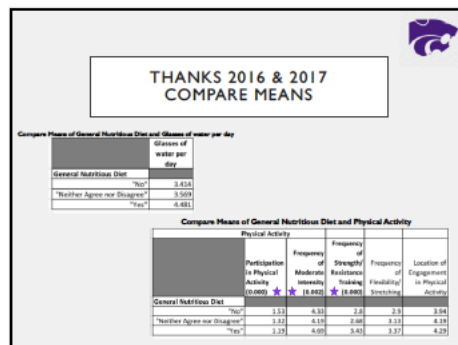
- S&B beverages and foods
- "Multiple times daily", "One time daily", "Multiple times weekly", "One time weekly", "Rarely", and "Never"

"Where do you get your meals during the week?"

- "Multiple times daily", "One time daily", "Multiple times weekly", "One time weekly", "Rarely", and "Never"

66

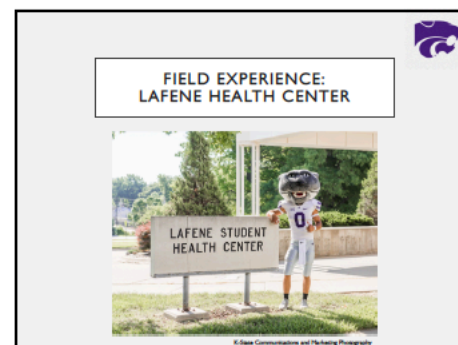




- ### THANKS 2016 & 2017 STRENGTHS
- Conducted by MPH and RD personnel
 - Large amount of student response
 - Qualtrics system is familiar to students
 - Sent out reminders at different time points
 - Questionnaire layout
 - Reliability analysis: "Where do you get your meals during the week?" had a Cronbach's Alpha of 0.892 and above 0.8 if Cronbach's Alpha if item deleted.
 - Logical comparisons with significance:
 - General nutritious diet of certain foods and where meals were obtained
 - Physical activity participation and consumption of sugar sweetened beverages
 - Readability analysis:
 - Flesch Reading Ease score of 70.3
 - Flesch-Kincaid Grade Level score of 5.2

- ### THANKS 2016 & 2017 LIMITATIONS
- Lack of piloting survey tool
 - Reliability analysis:
 - Low Cronbach's Alpha for PA (0.42) and Cronbach's Alpha if item deleted less than 0.7
 - "How often do you consume the following?" Cronbach's Alpha of 0.67 less than 0.70 if the Cronbach's Alpha if item were deleted.
 - Inter-item correlations: PA and location of engagement in PA below 0.15
 - Possible confusion on PA question #1 for low reliability with dichotomous response

- ### THANKS 2016 & 2017 CONCLUSIONS
- The Health Promotions team produced a survey tool that can be beneficial information on the college students at KSU to establish or reinforce health patterns for their time at KSU or later in life
 - The THANKS survey is a step in the right direction to bridge the gap between college health involved in diet, exercise and behavior.
 - The THANKS survey has room for improvement
 - Pilot study of PA and nutrition sections as well as the remainder of the sections of the holistic health survey
 - Research is a value for health care
 - The necessity for high-caliber tools is essential for good health care



HISTORY

- 1913-1916: Health services were located on the 2nd floor of Anderson Hall
- 1920: Hospital: An old 2-story stone building
- WWII: Influx of WWII veterans, more hospitals needed: 80 standing beds, extra beds set up in dining room and kitchen of the old stone building: winter epidemics of influenza, etc.
- November 1959: New building: current location \$20,000, with unfinished basement
- 1949-1961: Dr. Benjamin Lafene: director of health center
- 1987: Hospital portion of health center closed due to decline use with an increase in ambulatory services
- 1989: First non-physician as director for student health center



PRESENT DAY

- 70 staff: 6 full-time physicians, over 300 students each weekday during fall and spring semester; Accredited by Joint Commission on Accreditation of Healthcare Organizations since 1968 continuously
- \$141.83 student health fee
- 13 departments which include: Administration, Records and Registration, Clinical Laboratory, Environmental Services, General Outpatient Clinic, Health Promotion, Nutrition Counseling, Pharmacy, Physical Therapy and Rehabilitation, Radiology, Sports Medicine, Psychiatric Counseling and Women's Clinic.



K-State Communications and Marketing Photography

MISSION



- "The mission of Lafene Health Center is to maintain, for the Kansas State University community, through the utilization of quality resources, a medical facility capable of offering a comprehensive, high quality, easily accessible, affordable outpatient health care service to the student community. In addition to the care of the sick and injured, the Center shall be a resource and an advocate for health education, promotion and wellness.
- The Center shall, at all times and to the best of its ability, be responsive to the needs and concerns of the student body and general community of Kansas State University."

PRINCIPLES

- "Providing quality medical care to the individual student attending the University (outpatient care for illness, immunizations and health education)
- Assisting other University departments in providing a healthy environment, e.g. Infectious Disease Advisory Committee, Campus Safety, CARE Office, etc.
- Providing the opportunity for health education (classroom instruction, individual contact in clinic, articles on health in University newspapers)
- Consult and actively participate with the WalkCAT Ambassadors whose activities include providing a liaison between the student body and the Health Center.
- Providing the opportunity through the WalkCAT Ambassadors for better understanding of the Student Health program."



K-State Communications and Marketing Photography


HEALTH PROMOTION/NUTRITION COUNSELING AT K-STATE

- Staff:
 - Julie Gibbs, MPH- Director
 - Megan Katt, BS, RD- Health Educator
 - Jenny Yuen, MPH, CHES- Health Educator



SCOPE OF WORK

- Working within the community
- Connecting with community partners
- Development of materials of campaign
- Conduct assessment of campaign



LEARNING OBJECTIVES

- To understand how to organize and implement a campaign that served the student and staff population Kansas State University
- To understand research in relation to implementing a campaign/program in a public health setting
- To recognize the importance of a properly developed survey tool
- To gain a better overall understanding of a community-based health program and campaign



ACTIVITIES PERFORMED

- Fall 2017 Flu Campaign
- Research on influenza
- What is the current campaign
- Impact of the CDC
- Planning of a more effective campaign for Fall 2017
- Community outreach
- Development of campaign material

FALL 2017 FLU CAMPAIGN




FALL 2017 FLU CAMPAIGN


FALL 2017 FLU CAMPAIGN

- Goal of 1,800 influenza vaccines to the students and staff of KSU in the 2017-2018 season starting in September
- February 11th 2018: Lafene Health Center administered 1,860 influenza vaccination
- 2016-2017 season (September 2016-March 2017): 1,914 influenza vaccinations

THE HEALTH ASSESSMENT ON NEEDS OF K-STATE STUDENTS


- Review 2016 THANKS survey
- Apply immediate recommendations for 2017 THANKS survey
- Understand the purpose and development of the THANKS survey






ALIGNMENT WITH PUBLIC HEALTH CORE COMPETENCIES

- Biostatistics
 - Thesis research
 - Understanding and evaluating research articles
 - Analysis
 - Development of a survey tool
- Environmental health
 - Understanding the impact this plays into implementing campaigns/programs
- Epidemiology
 - 2017 Flu Campaign
- Health service administration
 - Lafene staff and health promotions team
 - Impact of organizational structure, goals, funding
- Social and behavior science
 - Designing and development of campaign, using theories of health behavior




ALIGNMENT WITH PUBLIC HEALTH CORE COMPETENCIES

- Biostatistics
 - Thesis research
 - Understanding and evaluating research articles
 - Analysis
 - Development of a survey tool
- Environmental health
 - Understanding the impact this plays into implementing campaigns/programs
- Epidemiology
 - 2017 Flu Campaign
- Health service administration
 - Lafene staff and health promotions team
 - Impact of organizational structure, goals, funding
- Social and behavior science
 - Designing and development of campaign, using theories of health behavior




ALIGNMENT WITH PUBLIC HEALTH CORE COMPETENCIES

- Biostatistics
 - Thesis research
 - Understanding and evaluating research articles
 - Analysis
 - Development of a survey tool
- Environmental health
 - Understanding the impact this plays into implementing campaigns/programs
- Epidemiology
 - 2017 Flu Campaign
- Health service administration
 - Lafene staff and health promotions team
 - Impact of organizational structure, goals, funding
- Social and behavior science
 - Designing and development of campaign, using theories of health behavior




ALIGNMENT WITH PUBLIC HEALTH CORE COMPETENCIES

- Biostatistics
 - Thesis research
 - Understanding and evaluating research articles
 - Analysis
 - Development of a survey tool
- Environmental health
 - Understanding the impact this plays into implementing campaigns/programs
- Epidemiology
 - 2017 Flu Campaign
- Health service administration
 - Lafene staff and health promotions team
 - Impact of organizational structure, goals, funding
- Social and behavior science
 - Designing and development of campaign, using theories of health behavior



ALIGNMENT WITH PUBLIC HEALTH CORE COMPETENCIES

- Biostatistics
 - Thesis research
 - Understanding and evaluating research articles
 - Analysis
 - Development of a survey tool
- Environmental health
 - Understanding the impact this plays into implementing campaigns/programs
- Epidemiological
 - 2017 Flu Campaign
- Health service administration
 - Lafene staff and health promotions team
 - Impact of organizational structure, goals, funding
- Social and behavior science
 - Designing and development of campaign, using theories of health behavior




ALIGNMENT WITH PUBLIC HEALTH CORE COMPETENCIES

- Biostatistics
 - Thesis research
 - Understanding and evaluating research articles
 - Analysis
 - Development of a survey tool
- Environmental health
 - Understanding the impact this plays into implementing campaigns/programs
- Epidemiological
 - 2017 Flu Campaign
- Health service administration
 - Lafene staff and health promotions team
 - Impact of organizational structure, goals, funding
- Social and behavior science
 - Designing and development of campaign, using theories of health behavior




CONCLUSIONS

- Better understanding of health care system
- Better understanding of biostatistical analysis and the impact on public health
- MPH program expanded my view of public health and its impact




REFERENCES

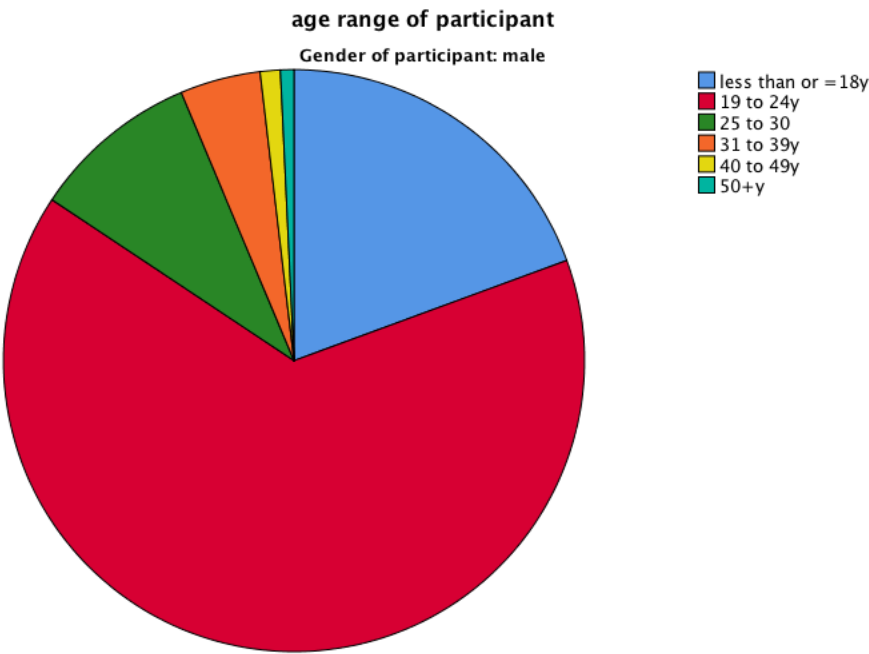
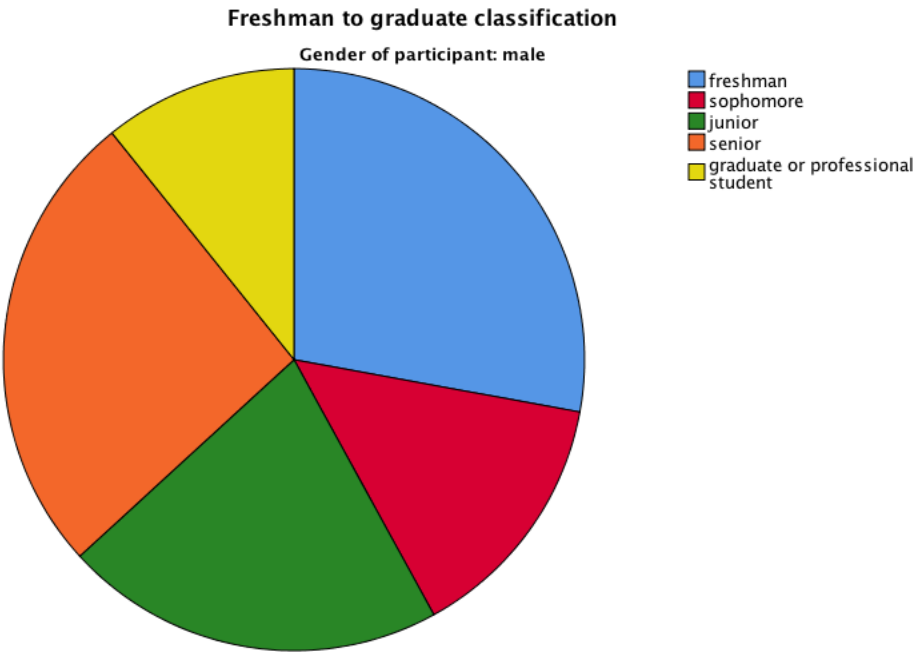
1. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
2. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
3. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
4. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
5. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
6. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
7. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
8. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
9. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)
10. [Baker, L. A., & Hertz, A. M. \(2015\). The public health system: A review of the literature. New York, NY: Oxford University Press.](#)

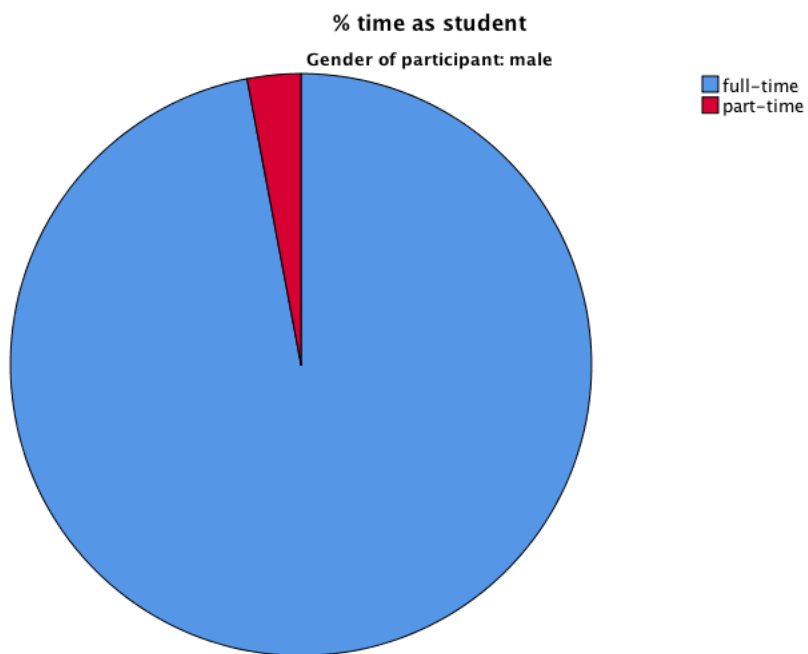
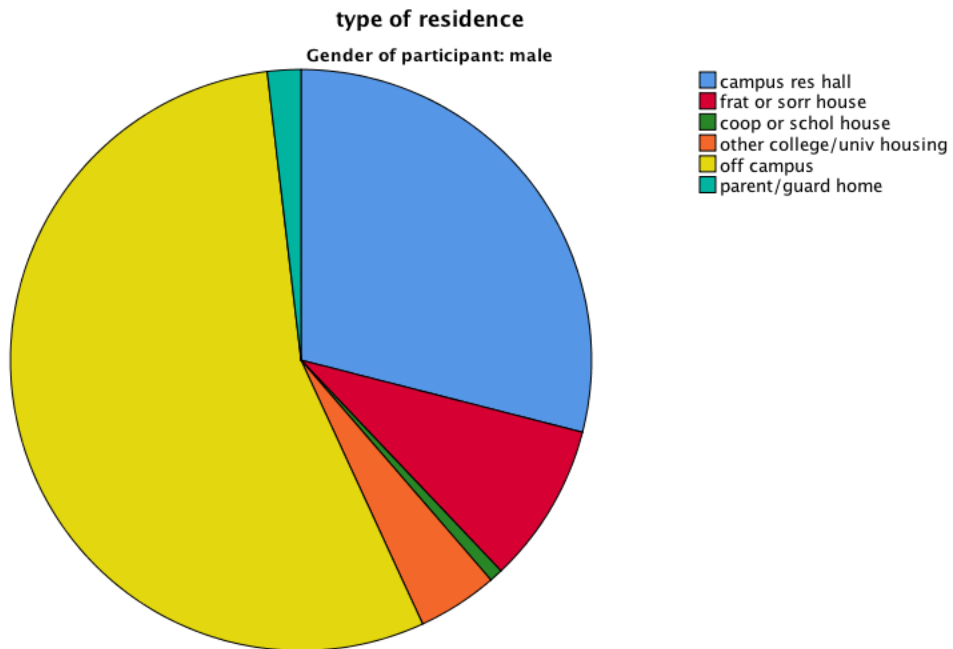


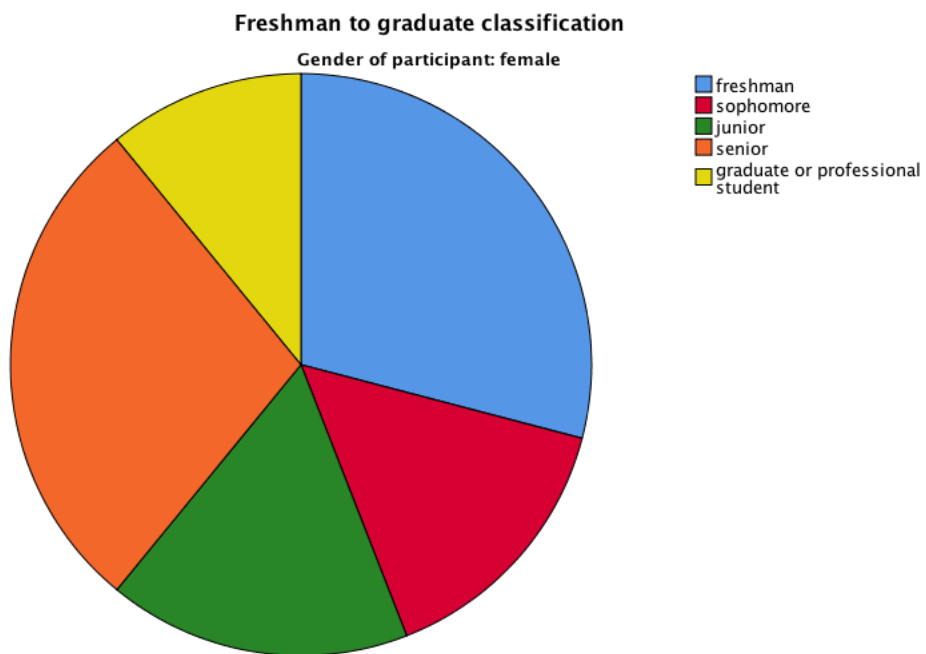
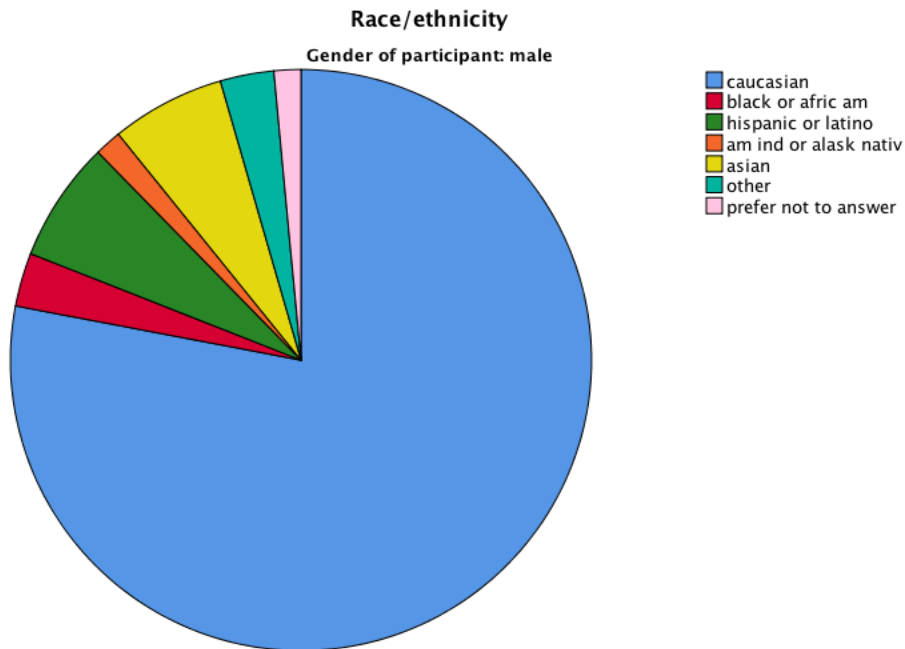
QUESTIONS?



Appendix C- THANKS Demographics Charts

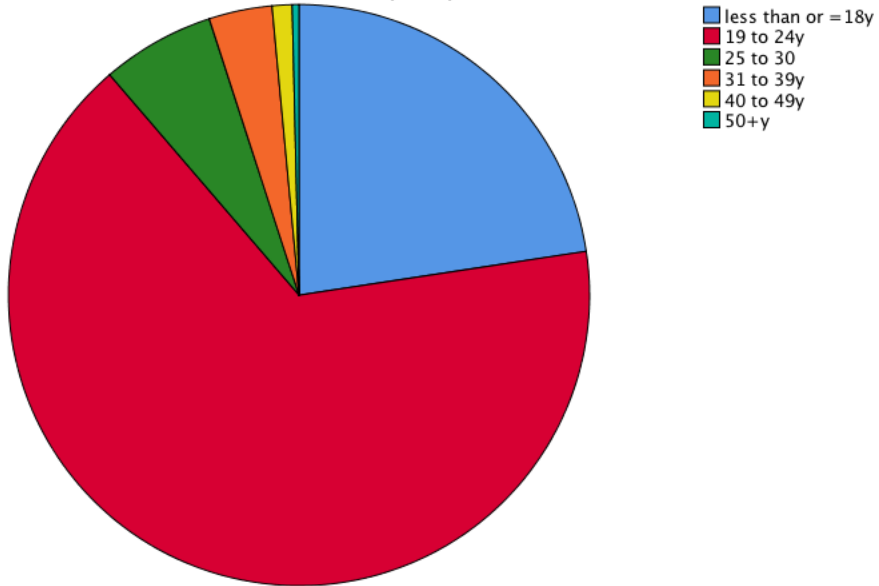






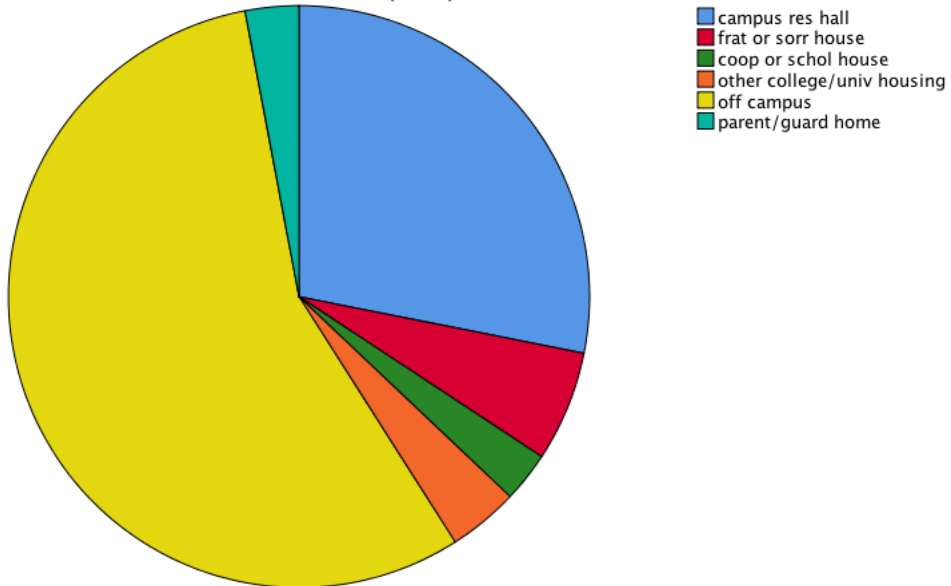
age range of participant

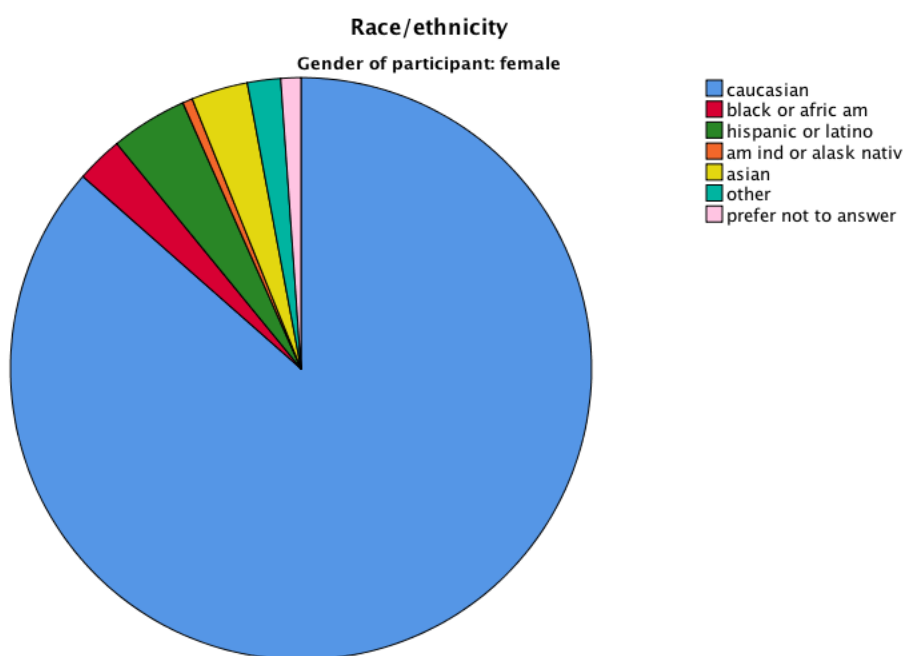
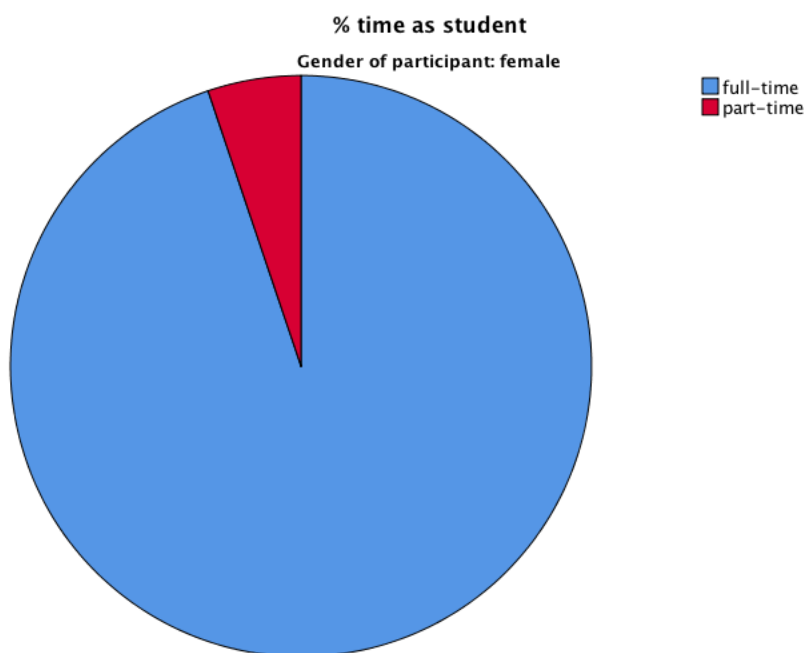
Gender of participant: female



type of residence

Gender of participant: female





Appendix D- THANKS Survey Section

Section A: Physical Activity

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. (World Health Organization)







The questions in this section will inquire about your personal physical activity habits.

1. Do you participate in at least 30 minutes of "moderate-intensity" activity (*you are able to talk, but not sing*), strength or resistance training, and/or flexibility or stretching exercises?

#	Answer	Bar	Response	%
1	Yes		325	72.22%
2	No		125	27.78%
	Total		450	100.00%







Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.28	0.20	0.45	450	450

2. How many times do you participate in at least 30 minutes of "moderate-intensity" activity (*you are able to talk, but not sing*) in a week?

#	Answer	Bar	Response	%
1	I do not participate in moderate-intensity exercise		4	1.23%
2	1 day		14	4.31%
3	2 days		56	17.23%
4	3 days		100	30.77%
5	4 days		59	18.15%
6	5 or more days		92	28.31%
	Total		325	100.00%






Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	4.45	1.57	1.25	325	325

3. How many times do you do strength or resistance training exercises in a week?

#	Answer	Bar	Response	%
1	I do not do strength or resistance training exercises		71	21.85%
2	1 day		58	17.85%
3	2 days		68	20.92%
4	3 days		66	20.31%
5	4 days		27	8.31%
6	5 or more days		35	10.77%
	Total		325	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	3.08	2.56	1.60	325	325

4. How many times do you do flexibility or stretching exercises in a week?

#	Answer	Bar	Response	%
1	I do not do flexibility or stretching exercises		53	16.36%
2	1 day		65	20.06%
3	2 days		65	20.06%
4	3 days		68	20.99%
5	4 days		33	10.19%
6	5 or more days		40	12.35%
	Total		324	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	3.26	2.53	1.59	324	324







5. Where do you go to exercise or engage in physical activity? *Select all that apply.*

#	Answer	Bar	Response	%
1	Home	<div></div>	159	49.07%
2	Neighborhoods	<div></div>	87	26.85%
3	Park	<div></div>	79	24.38%
4	Off-campus gym/studio	<div></div>	41	12.65%
5	K-State Recreation Center	<div></div>	213	65.74%
6	Other	<div></div>	36	11.11%
	Total		615	100.00%

Other
Walkin on campus
Memorial Field
hotels when not home
Band
KSUMB
Trails
Old Stadium
Old Stadium

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	3.28	3.08	1.76	615	324

2. What are the main reasons you do not exercise? Select all that apply.

#	Answer	Bar	Response	%
1	My job is physical or hard labor already.		10	8.06%
2	Exercise is not important to me.		19	15.32%
3	I don't have access to a facility that has the things I need, like a pool or a track.		2	1.61%
4	I don't have enough time to exercise.		85	68.55%
5	I would need childcare and I don't have it.		4	3.23%
6	I need an exercise partner and don't have one.		37	29.84%
7	I don't enjoy exercise.		47	37.90%
8	It costs too much to exercise.		4	3.23%
9	There is no safe place for me to exercise.		3	2.42%
10	Lack of motivation.		77	62.10%
11	Other		10	8.06%
	Total		298	100.00%





Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	11	6.39	8.23	2.87	298	124

Section B: Nutrition

Nutrition is defined as the intake of food, considered in relation to the body's dietary needs. (World Health Organization)

The questions in this section will inquire about your personal nutrition/dietary habits.

1. How many glasses of water (8 oz) do you drink in a day?

#	Answer	Bar	Response	%
1	1-2		77	17.19%
2	3-4		167	37.28%
3	5-8		122	27.23%
4	8+		81	18.08%
5	I do not drink water		1	0.22%
	Total		448	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	5	2.47	0.97	0.98	448	448

2. Where do you get your meals during the week?

#	Question	Once a week	2-3 times a week	4-5 times a week	Every Day	Response	Average Value
1	2a. At home: I prepare my own meals	31	56	102	171	360	3.15
2	2b. Dining hall (Derby or Kramer Food Center)	3	8	18	97	126	3.66
3	2c. On-Campus restaurants (e.g., Student Union, food trucks, JP's, Radina's, etc.)	77	45	6	4	132	1.52
4	2d. Off-Campus restaurants, including delivery	183	104	24	7	318	1.54
5	2e. Vending machines	46	16	6	2	70	1.49
6	2f. Meal delivery service (e.g., Blue Apron, Hello Fresh)	17	3	1	1	22	1.36
7	2g. Other	9	2	4	20	35	3.00

2g. Other
Fraternity's Cook
In dorm
Sorority House
Greek House
Sorority
The campus center at mcc
Sorority
Performance table -athletic
Greek Housing
friends
View More

Statistic	2a. At home: I prepare my own meals	2b. Dining hall (Derby or Kramer Food Center)	2c. On-Campus restaurants (e.g., Student Union, food trucks, JP's, Radina's, etc.)	2d. Off-Campus restaurants, including delivery	2e. Vending machines	2f. Meal delivery service (e.g., Blue Apron, Hello Fresh)	2g. Other
Min Value	1	1	1	1	1	1	1
Max Value	4	4	4	4	4	4	4
Mean	3.15	3.66	1.52	1.54	1.49	1.36	3
Variance	0.96	0.5	0.53	0.53	0.6	0.62	1.71
Standard Deviation	0.98	0.71	0.73	0.73	0.78	0.79	1.31
Total Responses	360	126	132	318	70	22	35
Total Respondents	360	126	132	318	70	22	35

3. As a college student, what barriers do you have in making healthy food choice? Select all that apply.

#	Answer	Bar	Response	%
1	I'm not able to get to the grocery store.		64	14.38%
2	Nutritious food costs too much.		235	52.81%
3	I don't have enough time to purchase and prepare meals and snacks.		232	52.13%
4	I don't know how to cook.		66	14.83%
5	I have dietary restrictions due to a medical condition.		17	3.82%
6	I have dietary restrictions due to religious beliefs/customs.		6	1.35%
7	I am unable to cook for myself (e.g., living situation, handicap, etc.).		41	9.21%
8	I don't know how to make healthy food choices.		40	8.99%
9	Other		30	6.74%
10	Not applicable; I do not have barriers to making healthy food choices.		86	19.33%
	Total		817	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	10	4.10	8.13	2.85	817	445

Other
There are not healthy choices in the dining centers
Don't always have time to cook
Food choices provided in Greek Houses are not always healthy
Fast Food is convenient and addictive
I don't have enough time to cook and eat 'appropriately' every meal.
Perceived time limit
Kramer doesn't have many healthy options.
Poor
Time
I get my food from the derby and don't feel like there are enough healthy eating choices available to me.
View More

4. How often do you consume the following?

#	Question	Multiple times daily	One time daily	Multiple times weekly	One time weekly	Rarely	Never	Response	Average Value
1	4a. Sugar-sweetened beverages (e.g., regular soda, lemonade, sweet tea, fruit punch, etc.)	39	53	118	70	130	40	450	3.71
2	4b. Energy drinks (e.g., Redbull, etc.)	2	5	15	22	121	279	444	5.46
3	4c. Sports drinks (e.g., Gatorade, etc.)	11	12	50	58	188	128	447	4.75
4	4d. Juice (orange juice, etc.)	9	25	91	86	167	69	447	4.31
5	4e. Sweetened or specialty coffee drinks (e.g., Mocha, Cappuccino, etc.)	7	36	69	57	126	152	447	4.60
6	4f. Candies	15	25	105	94	157	52	448	4.14
7	4g. Pastries, cakes, cookies	9	26	154	140	99	20	448	3.79

Statistic	4a. Sugar-sweetened beverages (e.g., regular soda, lemonade, sweet tea, fruit punch, etc.)	4b. Energy drinks (e.g., Redbull, etc.)	4c. Sports drinks (e.g., Gatorade, etc.)	4d. Juice (orange juice, etc.)	4e. Sweetened or specialty coffee drinks (e.g., Mocha, Cappuccino, etc.)	4f. Candies	4g. Pastries, cakes, cookies
Min Value	1	1	1	1	1	1	1
Max Value	6	6	6	6	6	6	6
Mean	3.71	5.46	4.75	4.31	4.6	4.14	3.79
Variance	2.08	0.78	1.44	1.51	1.9	1.56	1.11
Standard Deviation	1.44	0.88	1.2	1.23	1.38	1.25	1.06
Total Responses	450	444	447	447	447	448	448
Total Respondents	450	444	447	447	447	448	448

5. Do you consume at least two (2) servings of fruits and three (3) servings of vegetables on a typical day?

#	Answer	Bar	Response	%
1	Yes		152	33.78%
2	No		298	66.22%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.66	0.22	0.47	450	450

6. What are the reasons you do not consume at least two servings of fruits and three servings of vegetables on a typical day? Select all that apply.

#	Answer	Bar	Response	%
1	I'm not able to get to the grocery store.		55	18.58%
2	It costs too much.		131	44.26%
3	I don't have enough time to purchase and prepare them.		107	36.15%
4	I don't know how to prepare/cook/eat them.		28	9.46%
5	I don't like all or some fruits and vegetables.		116	39.19%
6	I have dietary restrictions due to a medical condition.		4	1.35%
7	I have dietary restrictions due to religious beliefs/customs.		1	0.34%
8	Other		57	19.26%
	Total		499	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	8	3.64	4.25	2.06	499	296

Other
There are not many choices in the Dining hall
I don't feel like eating veggies, usually
the derby doesn't have fruit
They go bad before I have a chance to eat them and I don't have time to go to the store multiple times in a week.
I can't control what is prepared at the sorority house.
I am too lazy to peel fruits and I don't eat fruit skins. I drink juice though!
I don't have the money or time to regularly get and eat produce before it rots
the dining center doesn't provide it
I rarely consume at least two servings of anything
Not enough available at dining center that I eat
View More

7. In general, I consume a nutritious diet.

#	Answer	Bar	Response	%
1	Agree		209	46.44%
2	Neither agree nor disagree		181	40.22%
3	Disagree		60	13.33%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	3	1.67	0.49	0.70	450	450

8. Are you concerned about not having enough food for you and/or your family to eat?



#	Answer	Bar	Response	%
1	Yes		20	4.44%
2	Sometimes		70	15.56%
3	No		360	80.00%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	3	2.76	0.27	0.52	450	450

Section C: Tobacco Use

The questions in this section will inquire about your personal tobacco use habits.

1. Are you a TOBACCO user?

#	Answer	Bar	Response	%
1	Yes		27	6.00%
2	No		423	94.00%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.94	0.06	0.24	450	450

2. How often do you use the following products for TOBACCO use?

#	Question	Daily	Weekly	Occasionally/ Socially	Never	Response	Average Value
1	1a. Cigarettes	12	3	6	5	26	2.15
2	1b. Cigars	1	1	9	12	23	3.39
3	1c. Chewing Tobacco	5	3	2	14	24	3.04
4	1d. E- Cigarettes/Vaporizers	2	-	3	19	24	3.63
5	1e. Hookah/Bong	2	-	5	17	24	3.54
6	1f. Pipe	1	1	2	20	24	3.71
7	1g. Other	1	-	1	16	18	3.78








Statistic	1a. Cigarettes	1b. Cigars	1c. Chewing Tobacco	1d. E- Cigarettes/Vaporizers	1e. Hookah/Bong	1f. Pipe	1g. Other
Min Value	1	1	1	1	1	1	1
Max Value	4	4	4	4	4	4	4
Mean	2.15	3.39	3.04	3.63	3.54	3.71	3.78
Variance	1.5	0.61	1.61	0.77	0.78	0.56	0.54
Standard Deviation	1.22	0.78	1.27	0.88	0.88	0.75	0.73
Total Responses	26	23	24	24	24	24	18
Total Respondents	26	23	24	24	24	24	18

3. Currently, are you interested in quitting any of the previously mentioned tobacco products?

#	Answer	Bar	Response	%
1	Yes	<div></div>	8	29.63%
2	Maybe	<div></div>	10	37.04%
3	No	<div></div>	9	33.33%
	Total		27	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	3	2.04	0.65	0.81	27	27

4. Where would you go for help/support to quit?

#	Answer	Bar	Response	%
1	I don't know where to go.		6	35.29%
2	Local Health Department		1	5.88%
3	KS Quitline		0	0.00%
4	Off-Campus Director		0	0.00%
5	Lafene Health Center		2	11.76%
6	Pharmacy		0	0.00%
7	Private Counselor/Therapist		1	5.88%
8	Church		1	5.88%
9	Tobacco Cessation Program		1	5.88%
10	Other		5	29.41%
	Total		17	100.00%

Other
Currently in progress
Friend
I wouldn't
No where. I'd do it myself





Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	10	5.41	16.01	4.00	17	17

Section D: Mental Health

Mental health is defined as a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community. (World Health Organization)

The questions in this section will inquire about your personal mental health.

1. How would you describe your current mental health wellness?

#	Answer	Bar	Response	%
1	Very good		129	28.67%
2	Good		194	43.11%
3	Fair		93	20.67%
4	Poor		32	7.11%
5	Not sure		2	0.44%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	5	2.08	0.81	0.90	450	450

2. Do you or would you consult a mental health professional when needed?

#	Answer	Bar	Response	%
1	Yes		191	42.44%
2	No		82	18.22%
3	Sometimes		70	15.56%
4	N/A; My mental health is always good		107	23.78%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	4	2.21	1.49	1.22	450	450


3. Where do you or would you go to talk to someone about your mental health wellness when needed? Select all that apply.

#	Answer	Bar	Response	%
1	Community mental health center	<div></div>	46	17.90%
2	Non-profit organization	<div></div>	15	5.84%
3	Hospital	<div></div>	15	5.84%
4	Off-campus doctor's office	<div></div>	76	29.57%
5	Lafene Health Center	<div></div>	65	25.29%
6	Phone hotlines	<div></div>	8	3.11%
7	K-State Counseling Services	<div></div>	127	49.42%
8	Family and friends	<div></div>	165	64.20%
9	K-State Family Center	<div></div>	12	4.67%
10	Other	<div></div>	23	8.95%
	Total		552	100.00%

Other
mental health center
counselor
VA
Cornerstone Family Counseling
Off-campus counseling
doctor through fort riley
My doctor
off campus counseling services
K-state vet med counselors
Veterans Affairs

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	10	6.06	5.73	2.39	552	257

4. In your opinion, what are the top three (3) needs related to mental health at K-State?

#	Answer	Bar	Response	%
1	Affordable health insurance that includes mental health care		192	43.74%
2	Affordable mental health services		220	50.11%
3	Affordable prescriptions		128	29.16%
4	Availability of transportation for mental health services		27	6.15%
5	High-quality mental health services		187	42.60%
6	Increased mental health education/prevention		203	46.24%
7	Increased number of mental health care providers		55	12.53%
8	Increased awareness to decrease stigma		192	43.74%
9	Other		10	2.28%
	Total		1214	100.00%













Other
Increase awareness, but mostly the quality of awareness in conveying what mental health is to those who have never dealt with it themselves or seen it first hand
unknown
discretion
confidentiality
Increased activities for mental health (i.e. pet stress away, etc)
Stop spending on that crap
don't really know how to respond
The counseling services needs and overhaul. Better therapists and actually be able to see someone more than just 4 times. I have never found them helpful.
not sure

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	9	4.36	6.10	2.47	1214	439

Section E: General Health

The questions in this section will inquire about your personal general health habits.

1. How do you get most of your health-related information? *Select up to three.*

#	Answer	Bar	Response	%
1	Attending a health fair		8	1.79%
2	Watching TV		62	13.87%
3	Church		16	3.58%
4	Doctor's office - off-campus		164	36.69%
5	Lafene Health Center		78	17.45%
6	Books and magazines		97	21.70%
7	Friends and family		245	54.81%
8	Health Department		49	10.96%
9	Helplines		6	1.34%
10	Internet		319	71.36%
11	Hospital		30	6.71%
12	Other		24	5.37%
	Total		1098	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	12	7.08	7.29	2.70	1098	447

Other
Brother is a doctor
Classes
I'm a doctor
I'm a kinesiology major
Already have large amount of medical knowledge
Basic Nutrition class
college courses
classes at K-State

2. What is the best way to get information to you? Choose one.

#	Answer	Bar	Response	%
1	Email	<div></div>	300	66.96%
2	K-State Today	<div></div>	14	3.13%
3	The Collegian	<div></div>	5	1.12%
4	Flyers around campus	<div></div>	11	2.46%
5	Radio ads	<div></div>	4	0.89%
6	Chalking around campus	<div></div>	16	3.57%
7	Advisors or professors	<div></div>	18	4.02%
8	Booths/Tabling events on campus	<div></div>	2	0.45%
9	Social Media (e.g., Facebook, Twitter, etc.)	<div></div>	75	16.74%
10	Other	<div></div>	3	0.67%
	Total		448	100.00%

Other
Do not inform me, as you all tend to not be up to date
Cell phone
Text alerts

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	10	3.01	10.22	3.20	448	448

3. What social media platform do you use MOST often? Choose one.

#	Answer	Bar	Response	%
1	Facebook	<div></div>	192	42.76%
2	Twitter	<div></div>	73	16.26%
3	Snapchat	<div></div>	86	19.15%
4	Instagram	<div></div>	54	12.03%
5	Pinterest	<div></div>	6	1.34%
6	Periscope	<div></div>	2	0.45%
7	Tumblr	<div></div>	4	0.89%
8	Other	<div></div>	4	0.89%
9	I do not use social media	<div></div>	28	6.24%
	Total		449	100.00%

Other
Reddit
Wechat
Weixin
Wechat





Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	9	2.60	4.54	2.13	449	449

4. Do you currently have health insurance?

#	Answer	Bar	Response	%
1	Yes		412	91.56%
2	No		21	4.67%
3	I do not know		17	3.78%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	3	1.12	0.18	0.43	450	450

5. Do you consult a medical professional when you are sick?

#	Answer	Bar	Response	%
1	Yes		179	39.78%
2	No		39	8.67%
3	Sometimes		196	43.56%
4	I am never sick enough to consult a professional		36	8.00%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	4	2.20	1.12	1.06	450	450

5a. Where do you go most often when you are sick while attending K-State?a

#	Answer	Bar	Response	%
1	Lafene Health Center	<div></div>	208	56.06%
2	Doctor's office, off-campus	<div></div>	102	27.49%
3	Health Department	<div></div>	5	1.35%
4	Urgent Care Center	<div></div>	21	5.66%
5	Emergency Room	<div></div>	2	0.54%
6	Community Free Clinic	<div></div>	4	1.08%
7	Other	<div></div>	29	7.82%
	Total		371	100.00%

Other
Online student, I do not live in Kansas
New, i havent had to yet
Have not been sick enough yet while at school to have to go somewhere
Hometown clinic
I'm a freshman and haven't been sick yet
Never gotten sick enough while attending
Home
I haven't been sick while attending.
N/A
haven't been sick yet while at kstate (knock on wood)
View More

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	7	2.02	2.98	1.73	371	371

6. Have you used Lafene Health Center's services?



#	Answer	Bar	Response	%
1	Yes	<div></div>	251	56.03%
2	No	<div></div>	197	43.97%
	Total		448	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.44	0.25	0.50	448	448

6a. Why do you not use Lafene Health Center?

Text Entry
I get the same sicknesses and injuries; my experiences with all medical facilities is that they'll tell me nothing new about recurring issues, so I'll just deal with it by myself as always.
i haven't had the need to yet
I don't know where it is
I don't think I've been in bad enough condition to need to. And I don't know what it would cost me.
Havent needed to
Have not needed to yet
I'm from Manhattan and am able to visit my primary healthcare provider
Never knew about it
I haven't needed to yet.
I haven't had a need to go get medical help yet.
View More

7. In the past 12 months, have you received a flu shot or nasal spray?

#	Answer	Bar	Response	%
1	Yes		152	33.85%
2	No		297	66.15%
	Total		449	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.66	0.22	0.47	449	449

In your opinion, what are the top three (3) needs related to physical health in the K-State community?

#	Answer	Bar	Response	%
1	Access to healthy food options		284	64.40%
2	Affordable health insurance		154	34.92%
3	Affordable health services		191	43.31%
4	Availability of transportation to health services		30	6.80%
5	Dental care options		67	15.19%
6	Eye care options		56	12.70%
7	Facilities for physical activity (i.e., parks, trails, rec centers, etc.)		163	36.96%
8	Health care assistance for veterans/military		32	7.26%
9	Increased health education/prevention (e.g., healthy eating, disease prevention, etc.)		158	35.83%
10	Increased number of health care providers		53	12.02%
11	Substance abuse prevention/treatment		56	12.70%
12	Other		7	1.59%
	Total		1251	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	12	4.80	11.11	3.33	1251	441

Other
Not sure, I do not live near K State
More healthy nutritious food. Less burgers, more fruits and vegetables.
Better hours for doctors for those working
Exercise. The rest comes after exercise.
unknown
confidentiality

9. On average, how many hours of sleep do you get per night?

#	Answer	Bar	Response	%
1	0		0	0.00%
2	1 hour		2	0.44%
3	2 hours		2	0.44%
4	3 hours		2	0.44%
5	4 hours	■	10	2.22%
6	5 hours	■	40	8.89%
7	6 hours	■	118	26.22%
8	7 hours	■	179	39.78%
9	8 hours	■	81	18.00%
10	9 hours	■	11	2.44%
11	10 or more hours		5	1.11%
	Total		450	100.00%













Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
2	11	7.69	1.44	1.20	450	450

Section F: Social Determinants of Health

The social determinants of health are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. (World Health Organization)

The questions in this section will inquire about your personal opinion of the social determinants of health on the Kansas State University campus.

1. In your opinion, what are the top three (3) social issues that are of most concern to you at K-State?

#	Answer	Bar	Response	%
1	Drug and alcohol use		191	43.21%
2	Sexual violence/assault		213	48.19%
3	Cybercrime (e.g., identity theft, online scams, phishing, etc.)		53	11.99%
4	Discrimination		121	27.38%
5	Driving under the influence of drugs and/or alcohol		167	37.78%
6	Homelessness		16	3.62%
7	Hunger		44	9.95%
8	Manufacturing of or selling of drugs		15	3.39%
9	Mental illness		130	29.41%
10	Poverty		33	7.47%
11	Suicide		48	10.86%
12	Binge drinking		149	33.71%
13	Prescription drug abuse		53	11.99%
14	Violent crime (e.g., murder, armed robbery, aggravated assaults, etc.)		30	6.79%
15	Gang violence		6	1.36%
16	Other		9	2.04%
	Total		1278	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	16	6.09	18.46	4.30	1278	442

Other
Not sure, I do not live near the K-State campus
none
unknown
im a distant learner
Unhealthy eating habits
none
lack of attention of the pedestrians when crossing streets on campus
Abortion

2. In your opinion, what are the top three (3) NEEDS related to social issues in the K-State Community?

#	Answer	Bar	Response	%
1	Employment		207	47.81%
2	Availability of mental health services		147	33.95%
3	Availability of support groups/peer support		143	33.03%
4	Increased enforcement of laws		79	18.24%
5	Childcare		47	10.85%
6	Housing options		148	34.18%
7	Options for arts and entertainment activities		96	22.17%
8	Services for domestic/sexual violence survivors		116	26.79%
9	Services for persons with disabilities		61	14.09%
10	Services for veterans/military		56	12.93%
11	Substance abuse prevention or treatment		117	27.02%
12	Other		14	3.23%
	Total		1231	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	12	5.31	11.40	3.38	1231	433

Other
Not sure, I do not live near the K-State campus
Need for more outdoor physical activity
unknown
Slum Lords taking advantage of poor college students
Availability of food
Affordable Housing
Diversity training and a non-discrimination policy
Service to help pregnant women when they are pregnant with money, clothes, diapers, etc.
Develop a better traffic culture in the pedestrians
Late night transit on weekend nights when students are most likely to be impaired.

Section G: Sexual Health

Sexual health is defined as a state of physical, mental, and social well-being in relation to sexuality. (World Health Organization)

The questions in this section will inquire about your personal sexual health history.

1. Are you currently sexually active?

#	Answer	Bar	Response	%
1	Yes		233	52.01%
2	No		215	47.99%
	Total		448	100.00%





Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.48	0.25	0.50	448	448

2. Have you ever been tested for STDs?

#	Answer	Bar	Response	%
1	Yes		100	42.92%
2	No		133	57.08%
	Total		233	100.00%


Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.57	0.25	0.50	233	233

3. How often are you tested for STDs?

#	Answer	Bar	Response	%
1	I've only been tested once or twice.		43	43.00%
2	When I suspect that I may have an STD.		7	7.00%
3	On a yearly basis.		41	41.00%
4	Each time I have a new sexual partner.		9	9.00%
	Total		100	100.00%


Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	4	2.16	1.19	1.09	100	100

Section H: Demographics**1. I identify my gender as:**

#	Answer	Bar	Response	%
1	Male		162	36.08%
2	Female		286	63.70%
3	Transgender		1	0.22%
4	Prefer not to disclose		0	0.00%
	Total		449	100.00%






Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	3	1.64	0.23	0.48	449	449

2. I consider myself to be:

#	Answer	Bar	Response	%
1	Heterosexual or straight		418	93.10%
2	Gay or lesbian		12	2.67%
3	Bisexual		19	4.23%
	Total		449	100.00%








Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	3	1.11	0.18	0.43	449	449

3. What is your student classification at K-State?

#	Answer	Bar	Response	%
1	Undergraduate freshman		110	24.44%
2	Undergraduate sophomore		71	15.78%
3	Undergraduate junior		78	17.33%
4	Undergraduate senior		105	23.33%
5	Graduate or professional student		85	18.89%
6	Not seeking a degree		1	0.22%
	Total		450	100.00%


Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	2.97	2.15	1.47	450	450

4. Please specify your race/ethnicity.

#	Answer	Bar	Response	%
1	White		363	80.85%
2	Black or African American		16	3.56%
3	Hispanic or Latino		22	4.90%
4	American Indian or Alaska Native		4	0.89%
5	Asian		27	6.01%
6	Native Hawaiian or Pacific Islander		0	0.00%
7	Other		11	2.45%
8	Prefer not to disclose		6	1.34%
	Total		449	100.00%






Other
middle east
white with hispanic
American/Middle eastern/European
Black and white
White, Latinex, and Black
Middle East
Middle eastern
Human
Iranian
White and Asian
View More

5. Age Range:

#	Answer	Bar	Response	%
1	< or equal to 18		87	19.38%
2	19-24		276	61.47%
3	25-30		46	10.24%
4	31-39		29	6.46%
5	40-49		8	1.78%
6	50+		3	0.67%
	Total		449	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	2.12	0.81	0.90	449	449

6. Where do you currently live?

#	Answer	Bar	Response	%
1	Campus residence hall		107	23.78%
2	Fraternity or sorority house		33	7.33%
3	Cooperative/Scholarship house		10	2.22%
4	Other college or university housing		18	4.00%
5	Off-campus housing (i.e., apartment, duplex)		270	60.00%
6	Parent/guardian's home		12	2.67%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	6	3.77	3.12	1.77	450	450

7. Are you an international student?

#	Answer	Bar	Response	%
1	Yes		38	8.44%
2	No		412	91.56%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.92	0.08	0.28	450	450

8. Currently, you are a:

#	Answer	Bar	Response	%
1	Part-time student		29	6.44%
2	Full-time student		421	93.56%
	Total		450	100.00%

Min Value	Max Value	Average Value	Variance	Standard Deviation	Total Responses	Total Respondents
1	2	1.94	0.06	0.25	450	450