


Spring 5-17-2019

Enhancing Nutrition Education for School Aged Children; a Preventive Health Measure and Quality Improvement Project

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Powell, Fanny M., "Enhancing Nutrition Education for School Aged Children; a Preventive Health Measure and Quality Improvement Project" (2019). *Doctor of Nursing Practice (DNP) Projects*. 166.
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Enhancing Nutrition Education for School Aged Children; a Preventive Health Measure and

Quality Improvement Project

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Abstract

Objective: The purpose of the DNP project was to improve nutritional knowledge of the adolescents at Kings Canyon Unified School District while also improving their perceived ability to choose healthy food. This project was enveloped in a larger community outreach mission utilizing a free pop-up school-based clinic for the purposes of providing sports physicals to students and health screening and physicals to the community. Additionally, nurse practitioner students engaged in a cultural immersion experience through clinical rotations in Central Valley.

Methods: Adolescent students who registered for the clinic watched a nine-minute nutrition video, created by the DNP student, while waiting for their physical. A random sample of 600 attendees answered a multiple-choice survey regarding nutrition knowledge and perceived ability to choose healthy food before and after the video. The pre and post video surveys were then submitted to Qualtrics which provided statistical analysis of the results.

Results: The post-video surveys demonstrated an improvement in nutrition knowledge and perceived ability to choose healthy food. Additionally, over 600 students and community members received a health screening.

Conclusion: This DNP project incorporated nutrition education to positively influence health and establish a quality improvement measure for school aged children. The project included a nutrition education video, designed to improve nutrition knowledge among adolescents while also improving their perceived ability to choose healthy food. The Health Specialist for the district recognizes the importance of nutrition education as well as the positive impact of the video and commits to play it in subsequent years. Additionally, the free school-based clinic provided several hundred community members with physicals and health screenings.

Lastly, nurse practitioner students engaged in local clinical rotations immersing themselves in the culture.

Keywords: *nutrition, education, health, adolescent, school based, school based clinic, Social Cognitive Theory, preventive screening, cultural immersion, impact of cultural immersion.*

Section II: Introduction

Background Knowledge:

The Centers for Disease Control and Prevention (CDC) (2016) indicates that schools can have a positive impact on students' educational and health outcomes. Since the 2006-2007 school year, schools are mandated to have a wellness policy that addresses nutrition education (Briggs, Fleischhacker, & Mueller, 2010). In 2012 the USDA published new guidelines aimed at improving nutrition in schools. In addition, government sponsored programs such as Healthy People 2020 have specified goals to improve the health of school-aged children noting that social environments, such as school, have a significant impact on nutritional habits formed by adolescents (Healthy People 2020, 2018).

According to Briggs, Fleischhacker, and Mueller (2010), most students do not receive the 50 hours per school year of recommended nutrition education. Throughout the nation students average approximately 13 hours a year (Briggs, Fleischhacker, & Mueller, 2010). California students receive less than 1 school day of nutritional education yearly (Jones & Zidenberg-Cher, 2015). Additionally, there are no national standards regarding the quality of nutrition education (Briggs, Fleischhacker, & Mueller, 2010). Due to the No Child Left Behind (NCLB) policy of 2001, many subjects such as nutrition education, social studies, art, music, and physical education were neglected to make more time for regularly tested subjects English and Math (Ladd, 2017; Briggs, Fleischhacker, & Mueller, 2010).

According to the U.S. Department of Health and Human Services adolescents (DHHS) (ages 10-19) make up more than 13% of the U.S. population. Due to increasing rates of obesity there is a potential for a decrease in life expectancy in the adolescent population compared to people of their parents' generation (Olshansky et al., 2005). The CDC (2015) states that

childhood obesity has more than doubled in younger children and quadrupled in adolescents over the past thirty years. In 1980 five percent of adolescents (age 12-19) were obese compared to twenty-one percent in 2012 (CDC, 2015). More than one-third of all children and adolescents in 2012 were overweight or obese (CDC, 2015).

Obesity is a multifactorial health issue that is affected by genetics, metabolic factors, socioeconomic factors, and lifestyle choices (Stanford, 2018). There are both immediate and long-term consequences of obesity that can be devastating to a child's health and carry over into the adult life. Immediate risks include: type 2 diabetes, hypertension, hyperlipidemia, asthma, sleep apnea, joint problems, fatty liver disease, gallstones and gastro-esophageal reflux (CDC, 2016). Long term consequences of obesity include: coronary artery disease, atherosclerosis, hip fracture, and gout (Tato, 2001); as well as increased risk for ischemic heart disease, stroke, hypertension, and diabetes (Reilly & Kelly, 2011). Additionally, obesity in children also renders significant psychological issues (American Academy of Child & Adolescent Psychiatry, 2016). According to the Children's Health Policy Center (CHPC) (2010), obese kids are the least desirable playmates and as many as 1/3 have no reciprocated friendships. The CHPC also cites obese children with poor self-perceptions, low self-esteem, negative body image, and a higher rate of psychiatric diagnoses than their non-obese counterparts. They have higher than average rates of depression, anxiety, eating disorders, social withdrawal and behavioral problems (Schwartz, 2010). Nutrition education is a useful tool in the fight against obesity (Meiklejohn, Ryan, & Palermo, 2016; Grosso et al., 2012).

Although this project is a brief, one-time video of nutritional information it compliments education already given to the target audience. The motivation for this project was birthed out of the request of Kings Canyon Unified athletes. The athletes of this district attend a sports

conference every summer. One of the many topics covered is health and nutrition. They are surveyed at the end of each conference and asked what information would be of interest to them. The attendees requested additional nutrition information. At the request of the Kings Canyon Unified Health Specialist, an educational video was created. The community organizers requested the University of San Francisco (USF) provide the requested information during sports physical week.

Sports physical week is a community outreach program conducted by USF's NP students. The goal is to set up a free school-based clinic with the intention of promoting health, assess and provide health education, provide sports physicals to adolescents, and provide NP students with clinical experience in rural culture which is different than their known urban environments. The genesis of this program was initiated by a request from the community. In 2012, the director of Save the Children, an international organization concerned with the health and prosperity of children (Save the Children, 2019), reached out to the University of San Francisco requesting assistance in meeting the health needs of the young students. That year there was approximately 100 kindergarteners, and 100 6th graders, that could not start school on time due to lack of school physicals and/or immunizations. This may, in part, be due to a higher than average physician to patient ratio. California averages 49.8 primary care physicians per 100,000 people (California Health Care Foundation, 2018). Conversely, Fresno County has 34-49 physicians per 100,000 and the physicians are not likely to accept Medi-Cal patients (California Health Care Foundation, 2018) (Appendix R). With 49.9% of Fresno County's population enrolled in Medi-Cal (Graves, 2016) this is a significant barrier to health and also an opportunity for USF's students to bridge the gap. The first year USF's students created a free, pop-up, school-based clinic and provided

physicals for students and their family members. USF has provided this service every year, except for one, making 2019 the sixth year in total and the fourth consecutive year.

Available Knowledge:

An electronic search was conducted using the following databases: CINAHL, PUBMED, Cochrane, and FUSION (Gleeson Library). The following search terms were used: *nutrition, education, health, adolescent, school based, Social Cognitive Theory, school based clinic, preventive screening, cultural immersion, impact of cultural immersion*. The ancestry approach (Cooper, 1982) was also utilized. This method of data collection utilizes citations made in other documents. Articles met inclusion criteria if they were no older than ten years, addressed the effects of nutrition education on health, evaluated the effectiveness of school-based clinics, and assessed the impact of cultural immersion programs. There was an emphasis on any research that addressed nutrition education and its effect on pediatric health as the DNP student posed the following PICOT question: Will nutrition education improve nutrition knowledge and perceived ability of the adolescent to choose healthy food? The search yielded thousands of articles, but few were specific to the relationship of nutrition knowledge and health, school-based clinics, children, cultural immersion, and conducted in a developed country. A majority of articles focused on a specific area, such as nutrition education and Turkish mothers, employees, or the effects of nutrition on specific medical diagnosis. Despite this, articles were found that support giving nutrition education, providing school-based health care, and the significance of cultural immersion programs as a means of positively affecting overall health. The quality and strength of these articles were then evaluated using the John Hopkins Nursing Evidence-Based Practice Research Appraisal tool (Appendix).

Nutrition Education: Meiklejohn, Ryan, and Palermo (2016) conducted a systematic review looking at randomized control studies (11 studies) evaluating multi-strategy nutrition education interventions on adolescents' (age 10-18) health with a focus on preventive approaches. The inclusion criteria were: reported on nutrition-related outcome or behavioral measures, randomized control studies, and published in a peer review journal between 2000-2014. The articles were screened by two authors using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA-DTA) checklist. Thirteen articles reporting on 11 different studies were included in their review. Participants aged from 10 to 18 years old and the number of participants per study ranged from 191 to 3,503. In nine of the studies nutrition education was given by school staff and teachers; technology was utilized to give education in three of the studies. The systematic review demonstrated that multi-strategy interventions have the greatest impact on anthropometric measures and dietary intake when parents, teachers, and staff are involved as well as changes in the school cafeteria.

Grosso et al., (2012) conducted a cross-sectional survey (n=445) evaluating the reliability of a nutrition questionnaire. The questionnaire was created by a team of physicians and nutritionist who were guided by a review of literature and already existing questionnaires to assess the associations between nutrition knowledge and consumption. This study was conducted at one school with students age 4 to 16. The authors of this study created two subgroups: students age 4-12 and 13-16 but found the results did not change from assessing them as a whole. The survey showed a correlation between higher nutrition knowledge scores and a lower than normal or normal body weight. Higher nutrition knowledge was also associated with increased fruit and vegetable consumption, decreased consumption of sweets and fried foods, and increased physical activity.

Watson, Kwon, Nichols, and Rew (2009) completed a quasi-experimental study (n=75) evaluating the effectiveness of nutrition education in improving student's nutrition knowledge, attitudes, and food consumption behaviors. The intervention group (n=45) attended a nutrition course fifty minutes a day, five days a week, for eighteen weeks. The control group (n=30) did not receive any additional courses outside of their normal school classes. The intervention group had significantly improved nutrition knowledge, interest in nutrition, improved perceived confidence in making good food choices, and increased milk and breakfast consumption. It should be noted that 17 out of the 45 in the intervention group were athletes, and 9 out of the 30-control group had previous nutrition course work.

Silveira, Taddie, Guerra, and Nobre (2011) conducted a systematic review of randomized control trials evaluating the "effectiveness of school-based nutrition education in reducing or preventing overweight and obesity in children and adolescents" (p.382, par. 1). Twenty-four studies that focused solely on school-based nutrition education were reviewed looking at the effectiveness of education to prevent or reduce weight gain. Interventions with a duration of one to three years showed a reduction in obesity with greatest effectiveness by incorporating the education in regular school activities, parent involvement, and provision of fresh produce in school food services.

Larsen et al. (2017) evaluated the change in nutrition knowledge and dietary consumption in kindergarten students (n=414) and their parents (n=264) after receiving instruction through a free program, Building a Healthy Me (BHM). BHM is a school-based nutrition education program designed for kindergarteners. The intention was to improve nutrition knowledge, behavior, and improve parenting skills regarding nutrition. This program is offered free of charge to public and private schools in California and is available for purchase outside of the state.

BHM includes instruction for the teacher and was administered by them between October and March in the 2013-2014 school year, students were sent home with ‘family homework’. At the conclusion of the program the students in the intervention group had measurable improved nutrition knowledge and improved dietary habits - choosing whole foods over processed or fried foods; parents reported increased incidents of using nutrition labels.

Fathi et al., (2017) conducted a study in Iran with female sixth graders (n=88). They were randomly selected and equally divided into an intervention and a control group. The intervention group received four 45-minute nutrition education sessions taught by teachers over the course of 4 weeks. The authors evaluated their results through the Health Belief Model. The intervention group had improved nutritional habits, improved confidence regarding their ability to eat a nutrient dense diet (self-efficacy) and had an increased awareness of the risks of choosing unhealthy snacks (perceived susceptibility).

School Based Clinic: The presence of a school-based health center (SBHC) improves health outcomes (Community Prevention Services Task Force, 2015), decreases emergency department visits, and improves access to preventive services (Federico, Marshall, & Melinkovich, 2011). The United States Preventive Services Task Force (USPSTF), American Medical Association (AMA), American Academy of Family Physicians (AAFP), and American Academy of Pediatrics (AAP) – Bright Futures, recommend preventive screening for adolescents (Elster, 2019). One avenue to be able to reach adolescents and promote preventive care and screening is through yearly well visits (Ozer et al., 2011). Not only do these visits allow for screening but they also allow for relationships to form between the patient and the provider allowing for a safe place for open dialogue regarding sensitive topics (Ham & Allen, 2012). Less than 40% of adolescents saw a primary care provider in the previous 12 months (Aalsma et al.,

2016). Aalsma et al., (2016) identified barriers to preventive visits including convenience, the belief that well child visits are not necessary, and budget restrictions (Federico, Marshall, & Melinkovich, 2011). Additionally, many pediatric clinics are geared towards younger patients and may not feel welcoming to adolescents (Ramos, 2017). SBHCs circumvent these barriers providing adolescents a safe place to access medical care and preventive screenings (Community Prevention Services Task Force, 2015; Federico, Marshall, & Melinkovich, 2011).

Cultural Immersion: Clinical rotations with a cultural immersion component fosters a greater understanding of various cultural health beliefs and promotes culturally sensitive care (Conroy & Taggart, 2015). This contributes to holistic patient centered care a hallmark of nursing dating as far back as Florence Nightingale (Selanders, 2010) and in line with USF's Jesuit values (USF, n.d.). Additionally, the Institute of Medicine (IOM) (2003) acknowledges cross cultural education as a vital tool in combating racial and ethnic disparities in health care.

Brock et al., (2019) conducted a systematic review of 9 studies evaluating the effects of cultural immersion and its impact on the education of graduate-level healthcare professionals. Out of the nine articles seven demonstrated participant's cognitive growth, specifically, improved self-awareness, knowledge, understanding, and consciousness. Five of the nine articles itemized emotional growth, and in all nine of the articles all of the healthcare professionals demonstrated perceptual growth – having to do with recognizing their own surroundings enabling a greater sensitivity towards outside socio-political and intrinsic issues. Having an expanded understanding of other people's culture and daily life enabled the graduate-level students to approach others different from them with increased openness and sensitivity.

Conroy and Taggart (2015) completed a small (n=21) qualitative study abroad with 19 undergraduate students and two NP students. Two faculty members accompanied them to China

for a two-week immersion into the Chinese culture, health-care system, and traditional Chinese medicine. The participants were given surveys with open ended questions and the faculty summarized the emerging themes. The participants noted the immersion to be a life changing experience promoting cultural awareness, appreciation, and sensitivity resulting in the ability to provide culturally competent holistic care.

Larsen and Reif (2011) conducted a quasi-experimental design to evaluate if a cultural immersion including cultural classes would impact the transcultural self-efficacy of undergraduate nursing students; control (n=25) versus intervention (n=14). Jeffreys' (2006) transcultural self-efficacy tool was used to evaluate the effects of the immersion. Post-immersion, the intervention group asserted improved self-efficacy and improved confidence in cognitive and practical cultural competency.

Rationale:

This project was conducted through the lens of the Social Cognitive Theory (SCT), a behavior change theory used to evaluate people's involvement in health-enhancing, or damaging, behaviors (Young, 2016). Bandura (2004) details the following:

The core determinants include *knowledge* of health risks and benefits of different health practices, *perceived self-efficacy* that one can exercise control over one's health habits, *outcome expectations* about the expected costs and benefits for different health habits, the *health goals* people set for themselves and the concrete plans and strategies for realizing them, and the *perceived facilitators* and social and structural *impediments* to the changes they seek. (pp.144)

The athletes understood the athletic benefits of a healthy diet after attending the Sports Conference (Miriam Cardenas, personal communication, April 2018) so the focus of the video

was to improve their perceived self-efficacy and basic nutrition knowledge. Self-efficacy is thought to be a pivotal construct that greatly impacts the other constructs (Young, 2016) (Appendix B) and can improve nutrition (Anderson et al., 2010; Ko et al., 2016).

Anderson, Winett, Wojcik, and Williams (2010) evaluated the impact of SCT constructs on the improvement of physical activity and nutrition after an intervention, Guide-to-Health (GTH). GTH was a weekly, internet-based module, each module taking approximately 5-10 minutes to view. The participants (N=661) were adult members of 14 different churches, randomly assigned to one of three groups; internet-based intervention along with support through the church, internet-based intervention only, or wait-listed (control group). The first eight weeks the modules focused on building social support, self-efficacy (gradual behavior change), outcome expectations, and self-regulation. The remaining weeks reinforced self-regulation with the goal of maintaining changes made to diet and frequency of physical movement. Participants were evaluated at 7 months and 16 months post-intervention; self-efficacy and self-regulation had the greatest influence on dietary and physical activity improvements.

Ko et al, 2016, evaluated 40 Mexican people, mostly woman, uninsured, and low income while instructing them on nutrition knowledge and cooking strategies. The evaluation was done using SCT and included eight, 90 minutes, sessions. Four constructs of SCT were targeted: observational learning, self-efficacy, outcome expectation, and behavioral capability. Participants showed an increase in nutritional knowledge as well as improved self-efficacy after the intervention.

The video (Appendix L) was thought to be effective because it is brief, simple, included printed words that corresponded with the verbal word, and has a physical demonstration of what a nutritional plate and proper hydration looks like. It reinforces information already given to the

students and was supported by fliers given to each student the day of (Appendix F and G). The video was created and played at the specific request of the Health Center Specialist (Appendix Q). The Bright Future Nutrition Tool (2011) cite video as an effective tool for sharing information with adolescents.

Specific Aims:

The primary aim of this project was to improve the nutritional knowledge and perceived self-efficacy regarding eating a nutrient dense diet through a video watched while waiting for a sports physical examination. The student athletes in Kings Canyon Unified School District are supported through a Sports Conference given every summer. After the previous summer's conference, the students requested more nutritional knowledge (Miriam Cardenas, personal communication, April 2018), and the Health Specialist specifically asked that this information be given via a video during the week of physicals. The intended inquiry was: Will providing nutrition education to high school students improve their nutrition knowledge and perceived ability to make better food choices? Secondary aims of this project were to create a free school-based clinic providing physicals and health screenings to the communities of Kings Canyon Unified School District as well as provide a cultural immersion for the NP students.

Clinic visits were made by the author and Dr. Loomis, DNP chair. The goal was to establish a relationship with surrounding health care sites. These relationships informed the author and chair about the needs of the community, the few resources available, and contributed towards establishing dynamic clinical experiences for the Nurse Practitioner student and her scholastic colleges. The goal of working in local clinics was to improve the clinical acumen of the NP students so that they could better serve Kings Canyon students as well as future patients. Working with this patient population allowed the NP students to be exposed to the culture of

Central Valley thereby encouraging consideration of working with populations such as these: resource poor, predominantly Medi-Cal funded, and communities experiencing higher than state average of patient to provider ratio. Nurse Practitioners can fill this gap, nearly half of all NPs providing patient care in 2012 were serving in primary care settings (Health Resources & Services Administration, 2018).

Section III: Methods

Context:

Yearly, USF works in collaboration with the Kings Canyon Unified School district and Adventist Health to provide health services and sports physicals to the students of Reedley and Orange Cove High Schools. Orange cove, population 9604, median household income \$27,782, with 51.6% of the population living in poverty (US Census Bureau, 2017). Reedley City, population 25,602, median household income \$43,907, with 26.6% of the population living in poverty (US Census Bureau, 2017). Although the main focus is the athletes at both schools, all students and their families were welcome. This is an opportunity for the nurse practitioner student to get experience with assessing and communicating with the adolescent population, as well as experiencing rural communities and understanding the barriers that come with living in a rural setting. Additionally, it serves the community by relieving some of the financial hardship of paying for a yearly sports physical (Darren Minami, Athletic Director, personal communication April 2018) and provides preventative health screening for all community members, and immediate referral if necessary.

The stakeholders are the students and their parents, the administration and staff at both high schools, the Adventist Health Center, and USF's NP program. Both high schools supplied the necessary media and screens for the video as well as chairs for students to watch the video

while waiting for their exam. There were no obstacles to implementing nutrition education. However, there were obstacles regarding clinical placement for NP students.

NP students have the opportunity to work in Central Valley for up to three weeks. The first two weeks the student works in a community clinic and the last week all of the students come together to provide sports physicals. The author and DNP chair arranged meetings with several clinicians in this region to establish relationships and locations where NP students would be able to carry out clinical work. This required several lines of communication as well as in-person meetings. While there were clinics that saw the value and expressed an interest, they were unable to provide a clinical rotation due to administrative barriers such as an inability to complete memorandum of understanding (MOU) or lack of a willing precepting provider. Locations associated with Adventist Health did not coordinate with the DNP student citing that the administrative work was too much for having only two weeks of clinic. However, the clinics that did allow the NP students to carry out their practicums at their sites saw the benefit of familiarizing NP students to the communities they served, mentoring them regarding how to be effective providers and getting familiar with the community and population health struggles. Additionally, they were hopeful that this mentoring and exposure would increase the likelihood that NP students would consider the Central Valley a desirable place to start their careers and improve the patient to provider ratio in this region.

Intervention:

During the week of physicals, a school-based clinic was established in the gymnasium of two high schools in Kings Canyon Unified School District: Reedley High School and Orange Cove High School. An overseeing physician from the Adventist Healthcare System was available by phone in the event any medical needs outside of the scope of a Nurse Practitioner

should arise. The school administration assisted in making sure there would be no disruption of the clinic by student events. The athletic department worked to notify the students and their parents of the event and distributed permission slips and health information surveys to be completed prior to arriving to the clinic. The school nurse and nurses from the Adventist Healthcare system assisted in registering the students. Registration includes verifying that all paperwork was complete, and obtains vital signs, weight, vision and hearing test. Once this initial screening is complete the students wait for their physical. While they are waiting, they watched a short video on nutrition and hydration. If there were any abnormalities in the student's assessment during registration and/or the physical, a referral is made to the appropriate Adventist clinic.

The video, 9m Nutrition Basics for Healthy Athletes FP (Appendix L), was based off of MyPlate from the United States Department of Agriculture (USDA) (2018). All three macronutrients are covered first; carbohydrates, proteins, and fats. Education regarding proper hydration by the American Chemical Society (2015) follows next. Along with a verbal description of each nutrient and its purpose is a plate full of the appropriate amount for each. What is being verbalized in the video is also typed along the bottom of each screen. Following the video is a power point slide show summarizing the contents of the video and ends with a YouTube video, "What do Electrolytes Actually Do?", by the American Chemical Society (2017). Information regarding hydration was added at the request of the girls' soccer coach (Miriam Cardenas, personal communication, April 2018). The target audience were athletes who normally practice and play games in dry heat peculiar to the climate of Central Valley California and suffer cramps thought to be due to lack of hydration.

Gap Analysis:

Although the athletes receive nutrition education at their yearly sports conference currently there are no mandated nutritional classes at Orange Cove or Reedley High School. Kings Canyon Unified School District does have a wellness policy, a wellness committee, and posts the school's menu online for parents and students to see. A salad bar is offered daily along with items such as cinnamon rolls, Cinnamon Toast Crunch cereal, cheeseburgers, corn dogs, and grilled cheese sandwiches (Reedley High Menu, 2018) (Appendix H). The video for this project supports information the athletes have been exposed to and for those that do not attend the sport conference it serves as an introduction to healthy eating.

GANTT:

In March 2018, Dr. Jo Loomis and this author met with the school district's Health Center Specialist to discuss the needs of the community and the structure for the school-based clinic. At this time the specialist requested, on behalf of the students, that USF provide additional nutrition education to the students. Originally boards were going to be displayed for the students to read while completing an answer sheet. When the team met again in April it was decided that a video needed to be made and played for the students. Communication regarding the school-based clinic and sports physicals continued until May (Appendix D and K).

A videographer was hired in April, they and this author met in person for two days to shoot and edit the video. The first day was at the author's kickboxing gym and the second day at the author's home residence. Multiple text messages and phone calls were made over the course of two weeks to finalize it. During the week of the physicals the author communicated with volunteers and fellow NP students regarding the collection of the questionnaires.

SWOT (Appendix I):

A few **strengths** about this modality is that it is quick, to the point, contains both visual and auditory stimulation, the written word, as well as pictures and demonstrations. There is little financial burden and the video can be replayed indefinitely without continued cost. Since the video is played through YouTube students can easily access the video at any time. Although this is convenient some of the **weaknesses** are that there is no personal engagement which does not allow for conversation, questions, and answers. The video plays in English only and the students cannot be mandated to watch it.

There is the **opportunity** for students to consult with and ask questions to the NP student during the physical as the high school student will be watching the video prior to their health assessment. The video allows the high school student to visualize a healthy meal giving a mental picture to compare too when the student is eating at home or school. Unfortunately, this can be **threatened** by lack of follow through in the cafeteria. If there are little to no healthy food options that are appealing to an adolescent's palate, picking a cinnamon roll over a salad is understandable. Additionally, families may experience financial barriers to healthy eating and opt to buy processed foods for their cost and convenience.

Budget:

This video was made with minimal cost because the student used resources in the community. The videographer and the use of the gym was free because of relationships the author had with both. If these resources were not available requesting the help of theater department at a local high school or college could be utilized to keep cost down. Additionally, questionnaires can be conducted electronically on free web-based sites eliminating the cost of making copies. The cost of creating this intervention is a one-time occurrence. Once it is

uploaded to YouTube it can be used repeatedly by various different schools. The budget will be analyzed as if there were no community resources (Appendix J).

Creating and editing the video consumed twenty-four hours of the videographers' time charged at \$75 per hour, with a total of \$1800. Private use of the gym is charged at \$150 per hour with a two-hour minimum. It took approximately two hours to get adequate video footage. The only other expense was the cost of the food props which amounted to \$10. Providing education through this video does not require a questionnaire but for the purposes of the DNP project the students were voluntarily surveyed to assess the impact of the video. The cost of creating 1000 copies amounted to \$218, bringing the total to \$2328 (\$2110 without copies of questionnaire).

This project did not yield a return on investment but rather a benefit to the community by cost avoidance. Obese children are 27%-54% more likely to be absent from school affecting their graduation rate and psychosocial development (An, Yan, Shi, & Yang, 2017). According to The Department of Education (DOE) (2016) chronic absenteeism in junior high and high school increased the likelihood of dropping out seven-fold. High school drop outs have an increased risk of poverty and diminished health (DOE, 2016). According to Thomson Medstat Research Brief (2005) the national medical cost of childhood obesity alone was \$14 billion dollars. Reedley High School has 1737 students, and Orange Cove H.S. has 631 students for the 2018-19 school year (Public School Review, 2018). In California 13.9% of high school students are obese (The State of Obesity, 2017) which means between these two high schools approximately 329 students have an increased risk of health problems and not doing well in school. Furthermore, it cost approximately \$29 for a missed school day (Faryon, 2011), so if each of these students missed one day of school due to a weight related issue that equates to \$9541 lost dollars to the school district annually. The difference between making the video and the potential return on

investment equals a savings to the school of \$7431, making this a financially advantageous endeavor.

Communication:

Dr. Loomis and the author met with Miriam in March regarding the school-based clinic. Miriam informed us of the request for nutrition education at this meeting. Over the next five weeks Dr. Loomis and the author corresponded in person, by phone, Zoom video, and email as needed. In April Dr. Loomis and the author met with Miriam again, she requested the nutrition education be given via video, and we toured the high schools and worked out a work flow for each day (Appendix D and K). The author made contact with the videographer, Tamika Pittman, and the gym owner, Ed Carpio. The author met with the videographer at the gym and then at her residence. The remaining contact occurred via phone call or text message. Dr. Loomis and the author continued to correspond through May. Just before physicals got started on the first day the author instructed volunteers and the other NP students on the workflow regarding pre and post questionnaires, nutrition video, and physicals.

The DNP student and chair corresponded with various clinics in Central Valley such as Family Health Network and Altura. Some clinics were referred to us by working health care providers whom the DNP student had a personal relationship with, and some were cold calls. The DNP student and chair spent 2 days in Central Valley meeting with the various clinics reviewing our needs, goals, and highlighting how working with our students could benefit their community. These visits were followed with multiple phone calls and emails. These efforts yielded a few clinic sites for 2018 but some did not yield results until 2019. Whether immediate or delayed, lasting relationships were formed at a few clinics in the area.

Measures:

The pre and post questionnaire (Appendix M and N) given to the students was based off of a sports nutrition knowledge questionnaire created and evaluated by Theresa Dvorak (2007) from The University of Utah. She tested the reliability and validity of her questionnaire for her Master of Science thesis. In demonstrating the reliability of her questionnaire, she found that age and nutrition knowledge coming from parents had the biggest influence on nutritional knowledge of athletes. The purpose of this project was to evaluate whether or not a video would make a difference in the student's knowledge and perceived self-efficacy, so, although their grade year was collected no other identifying factors were. Questions 1 – 5 of the given questionnaires assessed for general knowledge, questions 6 – 10 attempted to evaluate for perceived self-efficacy regarding the ability to eat nutritiously (Appendix M). The students completed a questionnaire when they registered for their physical, went through registration and triage, proceeded to the waiting area and watched the video, then had their physical done by a NP student. Upon completion of their physical they continued to the check-out desk, completed a post-video questionnaire, received a copy of their physical, and a referral if needed, then went back to class.

During this process it was challenging to ensure students watched the video, had any interest in nutrition education, or just distracted by sitting among their peers. The video also played on a continuous loop which made it difficult to measure if results were truly pre and post video. The results do show an improvement in knowledge post video (will be discussed) but there is no way to show that the results are directly related to the watching of the video. Furthermore, questions 8 and 10 proved to be confusing to the students as well as the volunteers. These two questions along with the answer key creates a double negative. For example, question

8 states, “I have no control over the foods available at home”. The possible answers are, “None/not at all”, “Neutral”, or “Very much/always”. The inquiry by volunteers was does choosing ‘not at all’ mean that the student does not have control over the food at home or, does it mean that the statement is false for them meaning that they do have control. Additionally, there was a significant discrepancy in the number of pre versus post surveys. Due to this and the confusion of questions #8 and #10, surveys were collected the following year asking a simple question to assess self-efficacy.

In 2019, the DNP student surveyed a small, random, sample of students with two alterations (Appendix N). First, the pre and post surveys were attached with the post video survey folded on itself so that the adolescent did not see the questions. If any of the surveys were incomplete both pre and post were disposed of, a total of 70 completed surveys were submitted. Second, in efforts to assess self-efficacy only one question was asked: Do you think watching the video will help you make better food choices? The possible answers were: Yes, No, Somewhat.

Ethical Considerations:

As a Jesuit community USF strives for social justice, accepting and respecting all individuals no matter their allegiance to faith or lack of. As members of such a community students commit to a culture of service, improving communities around us, treating all members of society with dignity while tending to people holistically standing up for those that may not be able to stand up for themselves. As providers it is important that we create a safe place for patients to be assessed, heard, and treated even if they may not be doing what we wish they would. For example, it is unethical to dismiss an upper respiratory infection just because the patient is known to be a smoker. Similarly, the school-based clinic needed to provide a safe place for students to come for a physical whether or not they engaged in the questionnaire or watched

the video. The author, NP students, volunteers, or USF staff did not receive any feedback regarding students feeling uncomfortable about the process for the physicals or this project. This author also stayed mindful about the possible financial burden of eating healthy for some students and gave alternatives in the video and made sure to display commonly found foods such as fruit, chicken, and rice. Although these items are commonly found they can still be expensive. In Orange Cove there were only two places to buy groceries. One of which is a corner store with a high price point: 1 gallon of milk \$3.99, 1 lb. of beans \$1.59, 16 oz. Skippy peanut butter \$4.99, 1 can of fruit or vegetable \$1.59-\$2.59, 16 oz. cheese \$6.99. Understanding our patient population and barriers to health is helpful in creating effective education.

Section IV

Results:

2018: There was a total of 280 pre-video surveys and 349 post-video surveys. Questions 1 – 5 tested nutritional knowledge, the correct answer is ‘true’ for all of them. There is an improvement in score with all 5 questions post video (Appendix M and O) showing an improvement in nutrition knowledge post video. Questions 6 – 10 attempted to evaluate the athletes perceived self-efficacy (Appendix M). Each question is a statement and the students are to rate on a scale of 1 – 5 how likely or true the statement is for them; 1 = none/not at all, 3 = neutral, 5 = very much/always. Excluding questions 8 and 10 as discussed above, the video, at first glance, shows to have a positive impact (Appendix O) on the students perceived eating patterns. It is difficult to assume this to be a true positive as there were 69 more post-video surveys than pre-surveys.

2019: The first five questions did not change from the previous year (Appendix M) and again demonstrated an improvement in nutrition knowledge post-video (Appendix O).

Additionally, a majority of the students that completed the survey answered “Yes” when asked if they thought the video would help them make better food choices (Appendix O). The DNP student was dependent on volunteers to dispense and collect surveys the first year as she was busy performing physicals. However, the second year the DNP student was not involved with the physicals, gleaned from lessons learned the previous year, revised the process and questions, and had a direct role in the dispensing and collecting of surveys.

Section V

Summary:

Showing the video appears to have improved basic nutrition knowledge for the athletes, it was unclear if their perceived self-efficacy was improved the first year as the author made it too complicated. However there appeared to be an improvement when asked one simple question the subsequent year. Prior to trying to improve perceived self-efficacy the author needed to assess the need for that intervention first. The adolescent athletes expressed an interest in more knowledge but did not express that they sensed an inability to make healthy food choices. One half of the AIMS was accomplished but the second portion needed to be investigated prior to creating what might have been an unnecessary intervention. When students were asked their thoughts and opinions about the video by the NP students during the physicals the feedback was positive. They felt the video was informative and some expressed a desire for more information. The author was surprised to see the improvement in the first five questions because during the school-based clinic it appeared no one was paying attention as there were too many distractions, namely the distraction of sitting with a peer.

As stated by Silveira, Taddie, Guerra, and Nobre (2011), education lasting one to three years that involves the community is most effective. Optimally, the schools involved will allow a

small window of time for nutrition education in the home room class so that all students, not just athletes, can glean from this education. This can then be followed up with a video like the one made for this project and the creation of some kind of moderated public forum, like a private Facebook page, for questions to be asked and ideas to be shared. The health specialist has expressed she would like to hire a health and nutrition coach, but it is not in the budget at this time. Perhaps a collaboration between nursing students and the public health department of the local university could create and execute a curriculum for the students alleviating the need for a new line item in an already restricted budget. This project shows that a difference can be made with a short video and this is something to consider when there is a desire to reach a population without demanding a provider find time to fit nutrition education into an already time restricted appointment or dealing with a restricted budget.

Limitations:

There were many limitations to this project. Although this intervention was requested the author needed to do a deeper inquiry into the barriers faced by the students. The students asked for nutrition education and the coaches asked for hydration education but was the education desired by a majority, or, a minority of students who attended the sports conference? Another limitation was the questionnaire used the first year. A trial program was needed to ensure the students understood the questions and to check for reliability and validity in this particular community. There also needed to be follow up outside of a flier given by the school, perhaps a moderated private Facebook page or some other form of public forum so that students can ask questions and share information.

Ko et al, 2016, assessed for self-efficacy asking participants how sure they were, on a scale of 1-10, to be able to:

(1) eat at least 5 servings of fruits and vegetables every day; (2) eat a vegetable (such as carrot or celery sticks) for a snack; (3) eat a fruit for a snack; (4) have a side salad instead of french fries when dining out; and (5) drink 100% fruit or vegetable juice at meals (p. 612).

If this project were to be repeated, and the DNP student had the ability to poll the students prior to being exposed to the video as well as after, this may be a more effective, simple, avenue for assessing self-efficacy. Given the specific environment and inability to assess before and after the week of physicals, asking one question, as was done in the subsequent year (2019), may have been more suitable. In the Ko et al. (2016) article one of the participants commented on the educator looking like they practice what they preach, “I know a lot of cooks and nutritionist who are overweight, very chubby. And, you get surprised and think, if they know what we should eat, why are they overweight? So if people practice what they teach, they are role models....and they inspire us to be role models as well.” (p. 614). Given this participants insight, the elevated BMI of the DNP student who is in the video may have served as a deterrent to receiving the information given.

The most significant limitation is the lack of follow through in the school curriculum and cafeteria. The Academy of Nutrition and Dietetics, Society of Nutrition and Behavior, and The School Nutrition Association all take the same position regarding the health of the nation’s children. Their position is that in order to improve children’s health and their academic performance there must be an integrative, comprehensive nutrition program starting in preschool and going through high school (Hayes, Contento, & Weekly, 2018). Although, not comprehensive, the government made an attempt by improving nutritional standards schools were mandated to meet (National Education Association, 2019). The 2010 Healthy, Hunger-Free

Kids Act (HHFKA), approved funding to meet the updated nutrition standards but the new standards imposed a financial hardship on some school districts (Hayes, Contento, & Weekly, 2018). These guidelines added an additional 10 cents for every lunch and 27 cents for every breakfast prepared. In contrast, the HHFKA (2010), only provided school districts with an additional 6 cents (Guerrero, Olsen, & Wistoff, 2018). The Academy of Nutrition and Dietetics state in their Spring 2018 position paper, “Nearly 8 in 10 school district directors have reported the need to reduce staffing, defer or cancel equipment investments, and reduce reserve funds to offset financial losses since the 2012 standards were implemented” (pp. 3).

Conclusion:

For the past several years the NP students of USF have gone to Central Valley for what is known as “The May Intensive”. A three-week cultural immersion intensive providing NP students with exposure to rural life, the pediatric population, the opportunity for employment which could possibly serves to decrease patient to provider ratio, and the ability to provide free physicals and health screening to the communities of Kings Canyon Unified School District. This DNP project added another component to the intensive, nutrition education.

During the May Intensive NP students expand their cultural awareness by working in the communities of Central Valley. Many areas of Central Valley have a higher than average patient to provider ratio with many of the providers unwilling to see Medi-Cal patients. This is significant as almost half of Fresno County is enrolled in Medi-Cal. In addition to the NP students improving their ability to be culturally sensitive resulting in better overall care, they are also exposed to possible employment sites. Employment for the new graduate NP in this community serves as a win-win for the student and the community.

Although nutrition education was requested by the school district for the athletes it is also a tool in combating adolescent obesity, a problem effecting over 1/3 of the pediatric population (CDC, 2015). The video served as a brief one-time intervention demonstrating positive changes in the student's nutrition knowledge and perceived ability to choose healthy food. Adolescents are influenced by their social environment, especially school as a majority of their waking hours are spent there. Unfortunately, there is a misalignment of messages to ask an adolescent to eat fruits, vegetable, and unprocessed food but then offer whole grain pizza or hot dogs every day in the cafeteria. A majority of the schools are not meeting necessary nutritional and physical standards needed for wellness and academic success. Without proper nutrition and access to adequate physical outlets students do not thrive socially or academically. Through this project we see that students want the information and it can be dispensed in such a way that it does not create a financial burden for the school system or medical providers.

Section V

Funding:

Funding for this project came from the DNP student's own financial resources. Due to relationships the student had with the videographer and the gym owner, rental and service fees were waived. Any food, lodging, or traveling to and from the week of physicals was alleviated by the help of family members in the area. There were no other financial demands for this project.

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Appendix A

Author/year	Design	Sample/setting	Topic studied	Key findings	Misc. Note	John Hopkins Appraisal Tool
Meiklejohn, Ryan, Palermo 2016	Systematic review All studies included were randomized control studies Only those published in peer review journals utilized	Inclusion criteria: randomized, published 2000-2014 eval multi-strategy interventions. Studies investigating Adolescents (10-19, WHO) in developed countries. 13 (n=6785) studies met criteria	Impact of multi strategy interventions addressing nutrition education on adolescent health	Changes seen most with parental/teacher/staff Involvement and changes made in cafeteria Multi-strategy interventions have significant impact on anthropometric measures and dietary intake	SCT and Theory of planned behavior used	Level I A-High Quality
Grosso et al. 2012	Cross-sectional survey	n=445 participants/questionnaires used Rural Sicily, Italy Children and young adolescent (4-16yrs)	test reliability of nutrition questionnaire and assess associations between nutrition knowledge and consumption	Higher nutrition knowledge scores assoc. with being under/normal weight Having parents in higher education/Occupational category also assoc. w/incr. f/v and lower consump of sweets/fried	Parents education/ Occupation controlled for	Level II A-High Quality

Author/year	Design	Sample/setting	Topic studied	Key findings	Misc. note	John Hopkins Appraisal Tool
Watson et al. 2009	Quasi experimental	75 students 14-19 yr old male and female N=45 intervention N=30 control North Texas High School 18wk nutrition related courses during fall. 5x/week 50min/day	Eval effectiveness of nutrition education in improving student's nutrition knowledge, attitudes, and food consumption behaviors	Intervention group had significant improved nutrition knowledge, interest in nutrition, improved perceived confidence in making good food choices, increase in milk and breakfast consumption	More students in intervention group engaged in sports 17/45 had previous nutrition course 9/30 had prev. nutrition course	Level I B-Good Quality
Odum, Housman, Williams 2018	Data analysis taken from National Cancer Institute's 2014 Family Life, Activity, Sun, Health, and Eating (FLASHE) study-a cross-sectional study	Data from the 2014 surveys N=795 Age 12-17 y.o.	Normative beliefs Knowledge Barriers Food preferences Self-efficacy	adolescents who preferred fruits and vegetables, believed they could eat fruits and vegetables, perceived fewer barriers to eating fruits and vegetables, and believed eating	No intervention/control Groups Participants of FLASHE survey results used for this study	Level III B-Good quality

				fruits and vegetables to be normal were most likely to consume fruits and vegetables more frequently		
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Author/year	Design	Sample/Setting	Topic Studied	Key findings	Misc. Note	John Hopkins Appraisal Tool
Pirouznia. 2001	Students completed CANKAP questionnaire (Comprehensive Assessment of Nutrition Knowledge, Attitudes, and Practices) which measured nutrition knowledge and eating behavior	N=532 middle school students (age 11-13) In Ohio middle school	Correlation of nutrition knowledge and eating behavior	Mean score- Nutrition knowledge scores: 6 th grade 13.7/20 no diff between sexes 7 th grade 11.8/25 girls > boys 8 th grade 11.5/25 girls>boys Eating behavior: 6 th grade 19.5/30 no diff in behavior between sexes 7 th grade 29.8/50 8 th grade 26.8/50 (+)eating behavior diff between sexes 7 th and 8 th grade girls = the only group to show	Different CANKAP given to 6 th grade vs. 7 th & 8 th Results derived from questionnaire No control/intervention group	Level III B-Good Quality

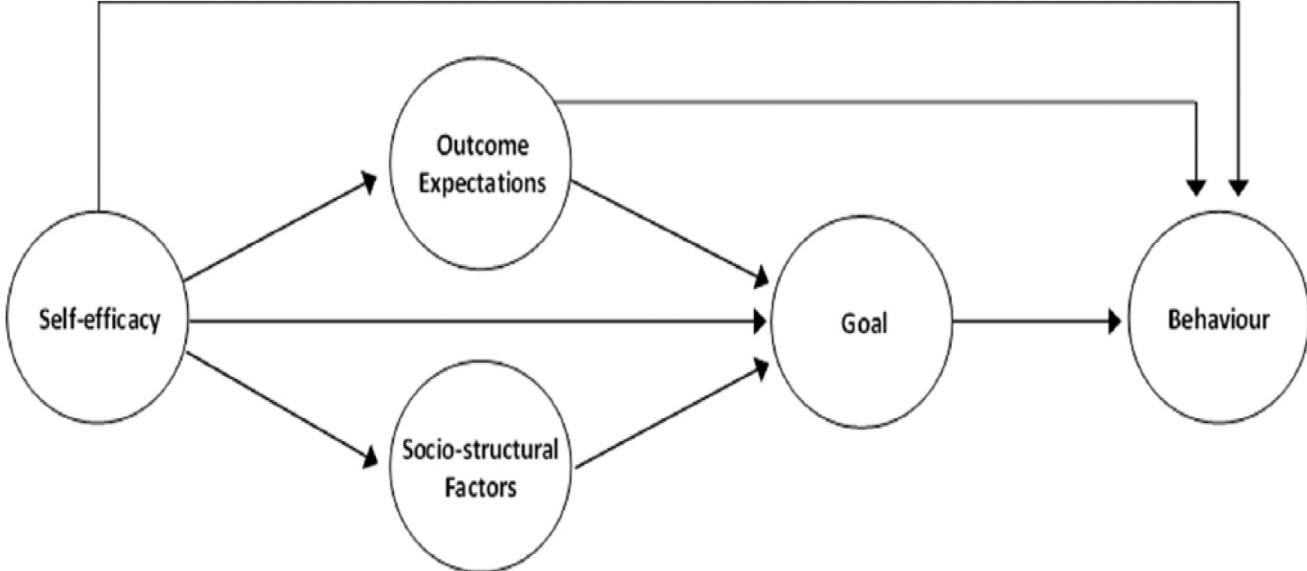
				correlation between knowledge and behavior		
Author/year	Design	Sample/Setting	Topic Studied	Key findings	Misc. note	John Hopkins Appraisal Tool
Silveira, Taddie, Guerra, Nobre 2011	Systematic review of RCT's	14 databases searched 24 studies reviewed	Effectiveness of school-based nutrition education to prevent/reduce weight gain Looked at articles that focused solely on nutrition education	Interventions with duration of 1-3 years = reduced weight/obesity	SCT used most in articles reviewed <i>Implication for policy makers</i> Interventions in schools to reduce the rates of overweight and obesity, as well as to increase consumption of fruits and vegetables, have demonstrated effectiveness in the	Level I A-High Quality

					<p>best-designed RCTs. Characteristics of the interventions that demonstrated effectiveness are as follows: duration longer than 1 year, introduction into the regular activities of the school, involvement of parents, introduction of nutrition education into the regular curriculum and provision of fruits and vegetables by school food services</p>	
--	--	--	--	--	---	--

Author/year	Design	Sample/Setting	Topic Studied	Key findings	Misc. note
Jones, Zidenberg-Cherr 2014	Web-based survey	California teachers n=102	nutrition education barriers and resources	For those that did not teach nutrition the most common barrier was lack of instructional time Funding to purchase nutrition education supplies/curricula/resources And support from administration = more likely to teach Whether or not it was taught was not associated with nutrition knowledge of the teacher Most teachers did not teach nutrition and those that did taught < 5 hr/semester	

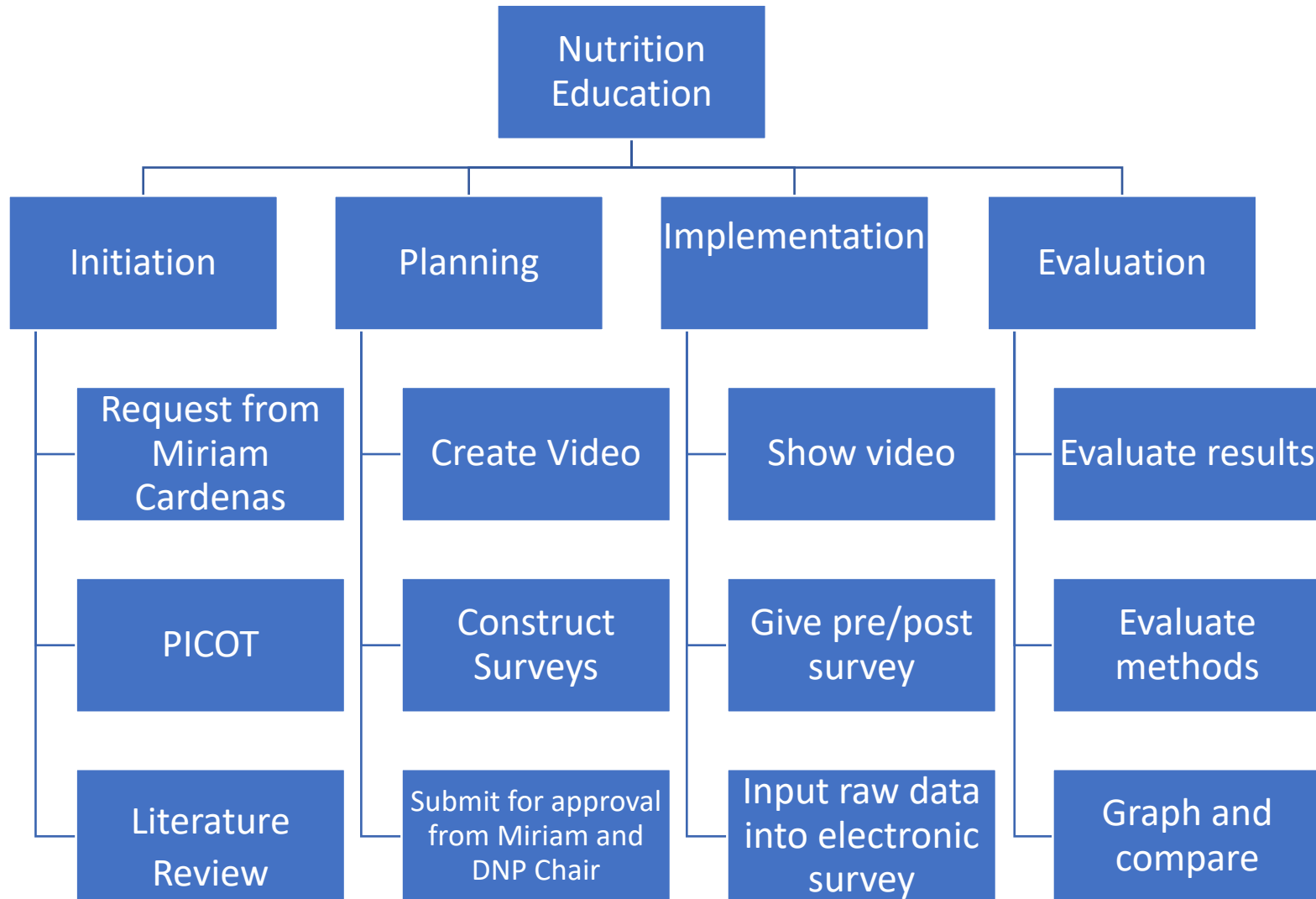
Author/Year	Design	Sample/Setting	Topic Studied	Key findings	Misc. Note	
Fahlman, Dake, McCaughtry, Martin, 2008		Middle school Large metropolitan area Intervention: N=407 Control: N=169	Impact of Michigan Model Nutrition Curriculum on nutrition knowledge, efficacy expectations, eating behaviors	Intervention group: Significant improvement in f/v consumption, improved knowledge & efficacy regarding healthy eating	MM curriculum is 8 lesson plan addressing food groups, pyramid, labels, advertising, body image	Level I A-High Quality

Appendix B



The social cognitive theory model of health behavior (Bandura, 2004)

Appendix C



Appendix E

UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

Enhancing Nutrition Education During a Community Partnership Outreach Clinic in Central Valley; A Preventive Health Measure and Quality Improvement Project

Fanny Powell MPH, BSN, RN
DNP student
Chair: Dr. Jo Loomis
Program: Doctor of Nursing Practice, Family Nurse Practitioner
May 17, 2019

Community Outreach
The May Intensive

- School Physicals
- Clinic Rotation
- Nutrition Education

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School Based Clinic
School Physicals

- Save the Children
- 2012: Kids unable to start school
- Barriers to health care

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Clinic Rotations

- Urban Communities
- Provider to Patient ratio
 - California 49.8 : 100K
 - Fresno 34-49 : 100K

UNIVERSITY OF SAN FRANCISCO

Nutrition Education

- Athletes ask for nutrition education
- Impact of nutrition education
- Adolescent obesity



Statistics on Obesity

- Decreased life expectancy
- Quadrupled in the past 30 years
 - 1980 5% - 2012 21%
- Immediate risk
- Long term effects
- Psychological impact



Literature Review

- **Meiklejohn, Ryan, Palermo (2016)**: Systematic review (11 studies) evaluating effects of nutrition education on adolescent health
- **Grosso et al., (2012)**: Evaluated (n=445) reliability of nutrition questionnaire and assessed association between nutrition knowledge and consumption
- **Watson, Kwon, Nichols, & Rew (2009)**: Evaluated effectiveness of nutrition education in improving nutrition knowledge, attitude, and food consumption
- **Silveira, Taddie, Guerra, & Nobre (2011)**: Systematic review of randomized control trials evaluating the effectiveness of school-based nutrition education in reducing obesity




Gap Analysis

- 50 hours per school year recommended
- National average 13 hours
- California average < 8 hours
- No national standards regarding quality of education



AIM

- To improve the health of a rural community through community partnership and nutrition education.
- Will providing nutrition education to high school students improve their nutrition knowledge and perceived ability to make better food choices.



Lights, Camera, Action...


- Video
- My Plate
 - Myplate.gov
- "What do electrolytes actually do?"
 - American Chemical Society




Pre (n=280) & Post (n=349) Survey

True – False - Unknown


1. Sport drinks are important to consume during intense practices longer than 60-90 minutes.
2. Dehydration can cause muscle cramps.
3. Carbohydrates are the main fuel for mental and physical performance.
4. Protein helps to build and repair muscle.
5. Fats are important for vitamin absorption.

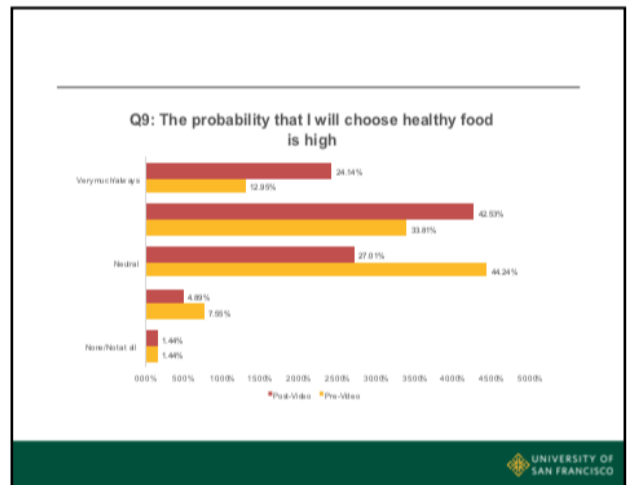
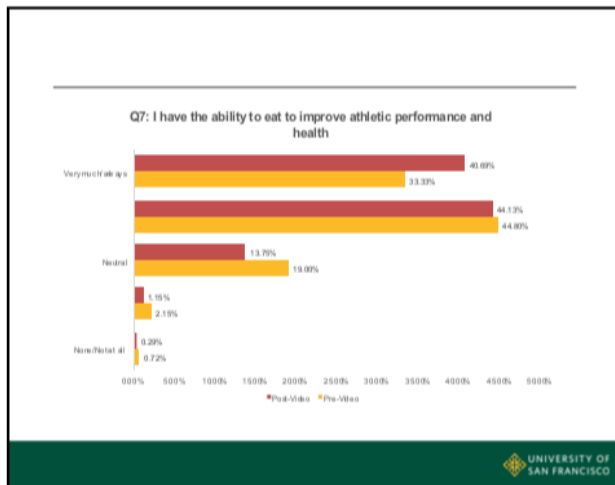
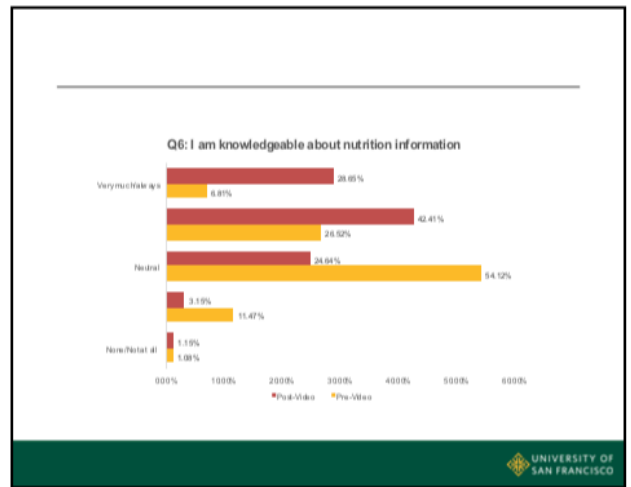
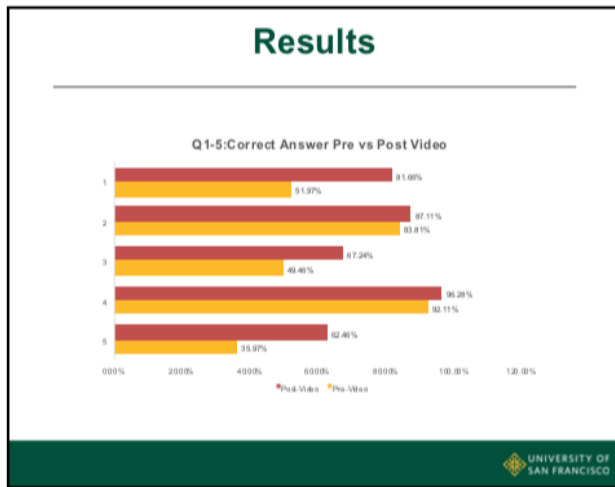


Pre & Post Survey

1= none/Not at all 3 = neutral 5 = very much/always


6. I am knowledgeable about nutrition information.
7. I have the ability to eat to improve athletic performance and health.
- *8. I have no control over the foods available at home.
9. The probability that I will choose healthy food is high.
- *10. I do not have the ability to eat healthy food.





Limitations/Ethics


- Unable to control viewing of video
- Unable to pilot questionnaire
- No personal engagement
- One time intervention
- English only
- Potential financial burden



Budget


- **Video:**
 - \$2110
- **Cost avoidance:**
 - 13.9% of CA HS students obese
 - Obese 27%-54% more likely to be absent
 - Absence = 29\$/day = \$9541 annually

Difference = \$7431



Summary and Plan

- Knowledge improved
- Perceived ability to choose healthy diet unknown due to measures used
- Continue to play video
- Future student working with NP students
- Health specialist recognizes need for improved nutrition on campus



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Appendix F



10 tips
Nutrition
Education Series



eat smart and be active as you grow

10 healthy tips for teen girls



Young girls, ages 10 to 19, have a lot of changes going on in their bodies. Building healthier habits will help you—now as a growing teen—and later in life. Growing up means you are in charge of foods you eat and the time you spend being physically active every day.

1 build strong bones

A good diet and regular physical activity can build strong bones throughout your life. Choose fat-free or low-fat milk, cheeses, and yogurt to get the vitamin D and calcium your growing bones need. Strengthen your bones three times a week doing activities such as running, gymnastics, and skating.



2 cut back on sweets

Cut back on sugary drinks. Many 12-ounce cans of soda have 10 teaspoons of sugar in them. Drink water when you are thirsty. Sipping water and cutting back on cakes, candies, and sweets helps to maintain a healthy weight.

3 power up with whole grain

Fuel your body with nutrient-packed whole-grain foods. Make sure that at least half your grain foods are whole grains such as brown rice, whole-wheat breads, and popcorn.



4 choose vegetables rich in color

Brighten your plate with vegetables that are red, orange, or dark green. Try acorn squash, cherry tomatoes, or sweet potatoes. Spinach and beans also provide vitamins like folate and minerals like potassium that are essential for healthy growth.



5 check Nutrition Facts labels for iron

Read Nutrition Facts labels to find foods containing iron. Most protein foods like meat, poultry, eggs, and beans have iron, and so do fortified breakfast cereals and breads.

6 be a healthy role model

Encourage your friends to practice healthier habits. Share what you do to work through challenges. Keep your computer and TV time to less than 2 hours a day (unless it's school work).

7 try something new

Keep healthy eating fun by picking out new foods you've never tried before like lentils, mango, quinoa, or kale.

8 make moving part of every event

Being active makes everyone feel good. Aim for 60 minutes of physical activity each day. Move your body often. Dancing, playing active games, walking to school with friends, swimming, and biking are only a few fun ways to be active. Also, try activities that target the muscles in your arms and legs.



9 include all food groups daily

Use MyPlate as your guide to include all food groups each day. Learn more at www.ChooseMyPlate.gov.

10 everyone has different needs

Get nutrition information based on your age, gender, height, weight, and physical activity level. Use SuperTracker to find your calorie level, choose the foods you need, and track progress toward your goals. Learn more at www.SuperTracker.usda.gov.

SuperTracker

Appendix G



10 tips
Nutrition
Education Series



choose the foods you need to grow

10 tips for teen guys



Feed your growing body by making better food choices today as a teen and as you continue to grow into your twenties. Make time to be physically active every day to help you be fit and healthy as you grow.

1 **get over the idea of magic foods**
There are no magic foods to eat for good health. Teen guys need to eat foods such as vegetables, fruits, whole grains, protein foods, and fat-free or low-fat dairy foods. Choose protein foods like unsalted nuts, beans, lean meats, and fish. SuperTracker.usda.gov will show if you are getting the nutrients you need for growth.



6 **skip foods that can add unwanted pounds**
Cut back on calories by limiting fatty meals like ribs, bacon, and hot dogs. Some foods are just occasional treats like pizza, cakes, cookies, candies, and ice cream. Check out the calorie content of sugary drinks by reading the Nutrition Facts label. Many 12-ounce sodas contain 10 teaspoons of sugar.

2 **always hungry?**
Whole grains that provide fiber can give you a feeling of fullness and provide key nutrients. Choose half your grains as whole grains. Eat whole-wheat breads, pasta, and brown rice instead of white bread, rice, or other refined grains. Also, choose vegetables and fruits when you need to "fill-up."

7 **learn how much food you need**
Teen guys may need more food than most adults, teen girls, and little kids. Go to www.SuperTracker.usda.gov. It shows how much food you need based on your age, height, weight, and activity level. It also tracks progress towards fitness goals.



3 **keep water handy**
Water is a better option than many other drink choices. Keep a water bottle in your backpack and at your desk to satisfy your thirst. Skip soda, fruit drinks, and energy and sports drinks. They are sugar-sweetened and have few nutrients.



8 **check Nutrition Facts labels**
To grow, your body needs vitamins and minerals. Calcium and vitamin D are especially important for your growing bones. Read Nutrition Facts labels for calcium. Dairy foods provide the minerals your bones need to grow.

4 **make a list of favorite foods**
Like green apples more than red apples? Ask your family food shopper to buy quick-to-eat foods for the fridge like mini-carrots, apples, oranges, low-fat cheese slices, or yogurt. And also try dried fruit, unsalted nuts, whole-grain breads, cereal, and crackers; and popcorn.

9 **strengthen your muscles**
Work on strengthening and aerobic activities. Work out at least 10 minutes at a time to see a better you. However, you need to get at least 60 minutes of physical activity every day.



5 **start cooking often**
Get over being hungry by fixing your own snacks and meals. Learn to make vegetable omelets, bean quesadillas, or a batch of spaghetti. Prepare your own food so you can make healthier meals and snacks. Microwaving frozen pizzas doesn't count as home cooking.



10 **fill your plate like MyPlate**
Go to www.ChooseMyPlate.gov for more easy tips and science-based nutrition from the Dietary Guidelines for Americans (www.DietaryGuidelines.gov).

Appendix H

Breakfast and lunch options:



Whole Grain Pizza



Whole Grain Concha

Appendix I**SWOT**

Strength <ul style="list-style-type: none">• Quick, to the point• Little financial burden• Electronically simple• Visual and auditory stimulation	Weakness <ul style="list-style-type: none">• No personal engagement with student at time of video• English only• Cannot mandate student will watch/pay attention
Opportunities <ul style="list-style-type: none">• Student to ask question to NP student conducting physical• Student to visualize healthy meal• Create inquiries about nutrition and hydration	Threats <ul style="list-style-type: none">• Lack of follow up by the school• Poor food options in cafeteria• Inability of family to buy healthy food

Appendix J**Budget**

Video = a one-time cost

Item	Cost
Videographer	1800
Gym Rental	300
Groceries	10
Copies of Questionnaire	218
Upload to internet	0
Total w/o questionnaire	2110
Total with questionnaire	2328

Appendix K

Communication Table

Information	Audience	When	Method	Provider
Request made to USF for nutrition education	Dr. Loomis Fanny Powell	March 2018	In person meeting on site of clinic	Adventist Health Center Specialist
Reviewing dietary and hydration guidelines	Dr. Loomis	March 2018	In person, email, Phone	Fanny Powell
Review program, tour high schools, video requested, workflow figured out	Dr. Loomis Miriam Cardenas	April 2018	In person on site of clinic	Fanny Powell
Creating video	Videographer: Tamika Pittman Gym owner: Ed Carpio	April 2018	In person	Fanny Powell
Assess workflow and trouble shoot obstacles	Miriam, volunteers, NP students	May 2018 On location	Fanny Powell to communicate with team on-site	Fanny Powell
Close out project, acknowledge staff	Miriam, volunteers, NP students, Dr. Loomis	May 2018	On-site at conclusion of the week	Fanny Powell
Review data synthesize and report	Dr. Loomis Dr. Sandhu	December 2018	Via prospectus	Fanny Powell

Appendix L

Video link: <https://www.youtube.com/watch?v=gJmIX9QP2sY&t=52s>

Appendix M

1. Sport drinks are important to consume during intense practices longer than 60-90 minutes.

True False Unknown

2. Dehydration can cause muscle cramps.

True False Unknown

3. Carbohydrates are the main fuel for mental and physical performance.

True False Unknown

4. Protein helps to build and repair muscle.

True False Unknown

5. Fats are important for vitamin absorption.

True False Unknown

Please use this key to answer the following questions:

1	2	3	4	5
None/Not at all		Neutral		Very much/ always

6. I am knowledgeable about nutrition information.

1	2	3	4	5
---	---	---	---	---

7. I have the ability to eat to improve athletic performance and health.

1	2	3	4	5
---	---	---	---	---

8. I have no control over the foods available at home.

1	2	3	4	5
---	---	---	---	---

9. The probability that I will choose healthy food is high.

1	2	3	4	5
---	---	---	---	---

10. I do not have the ability to eat healthy food.

1	2	3	4	5
---	---	---	---	---

Regarding nutrition, I would like to learn about:

Eating healthy is hard for me because:

Appendix N

(2019)

Please answer AFTER watching the video.

1. Sport drinks are important to consume during intense practices longer than 60- 90 minutes.

True False Unknown

2. Dehydration can cause muscle cramps.

True False Unknown

3. Carbohydrates are the main fuel for mental and physical performance.

True False Unknown

4. Protein helps to build and repair muscle.

True False Unknown

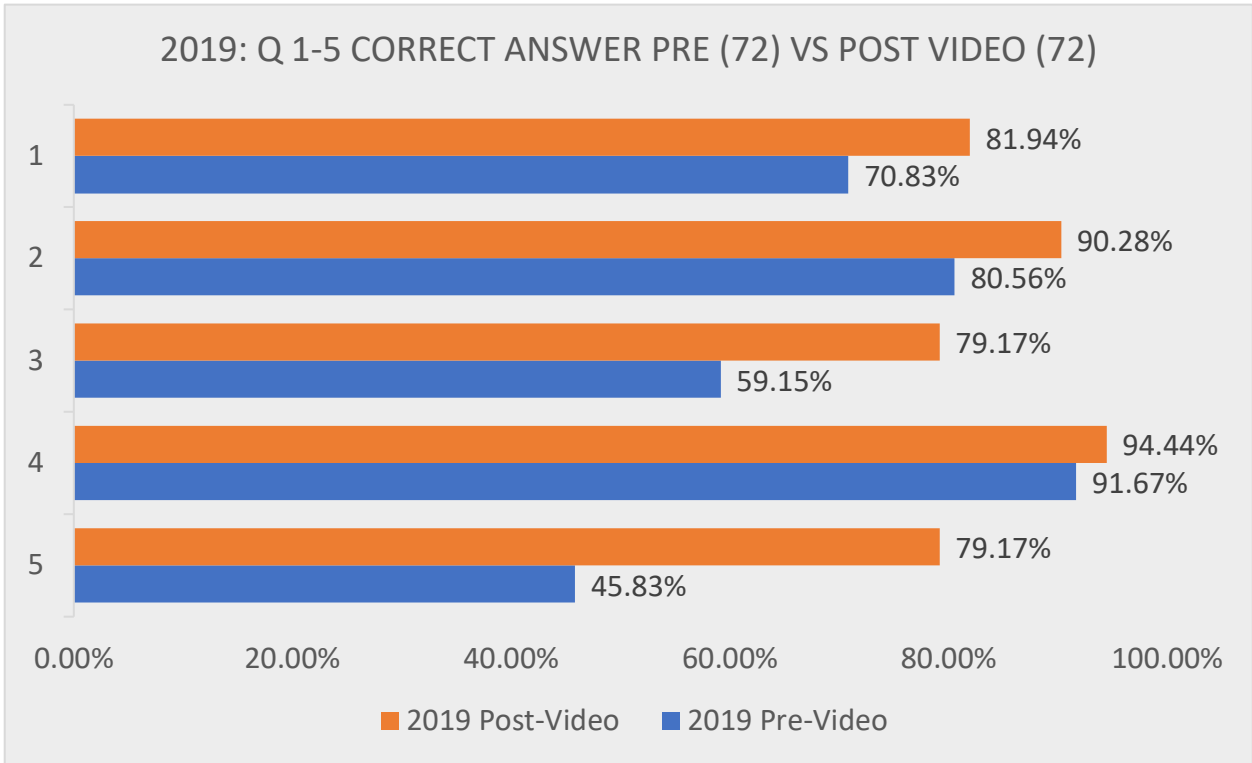
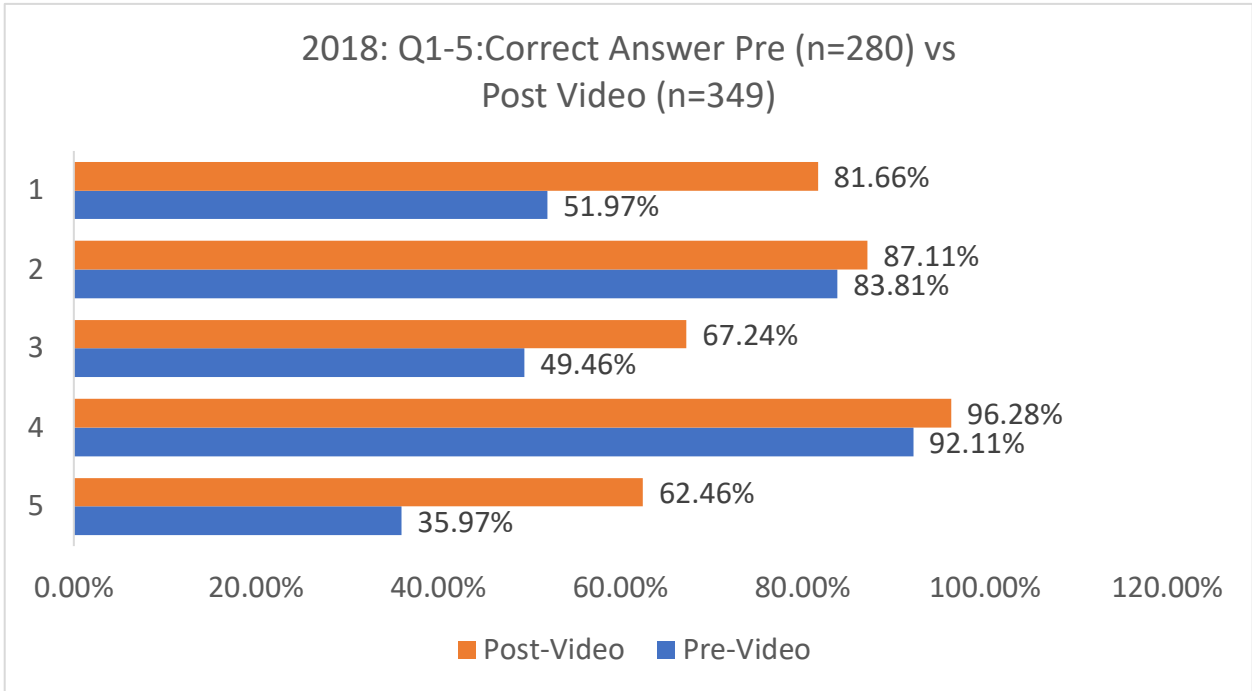
5. Fats are important for vitamin absorption.

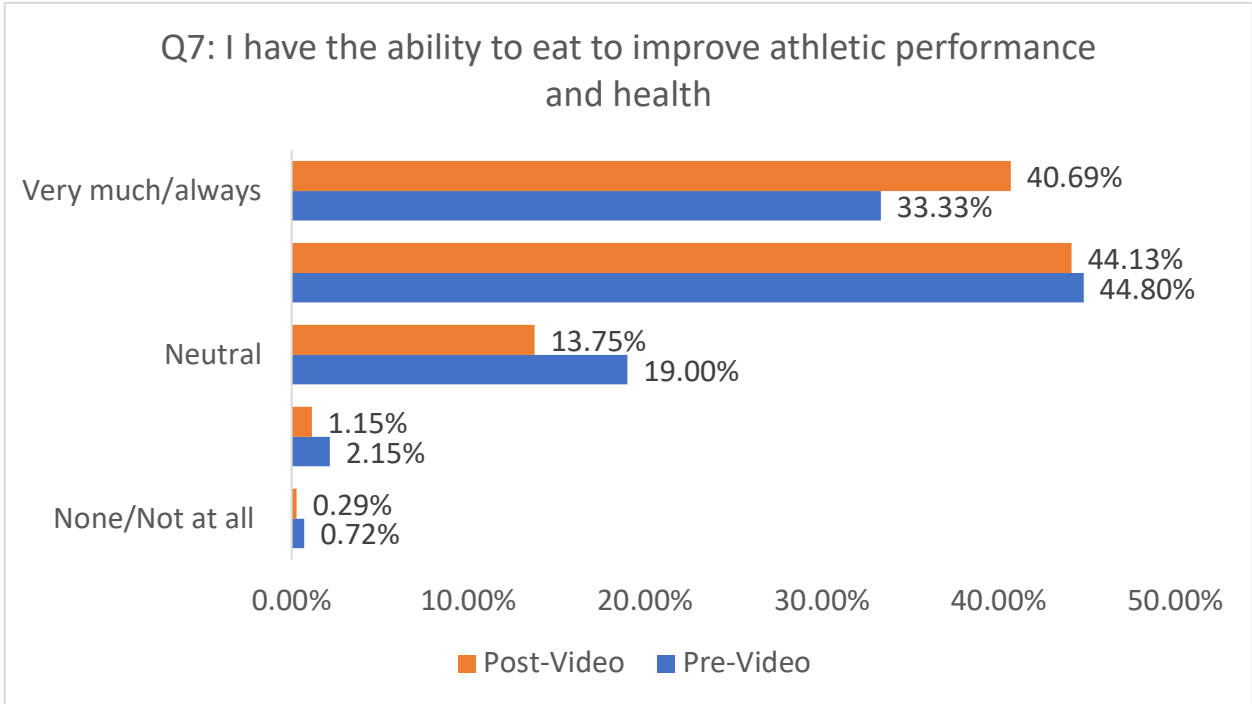
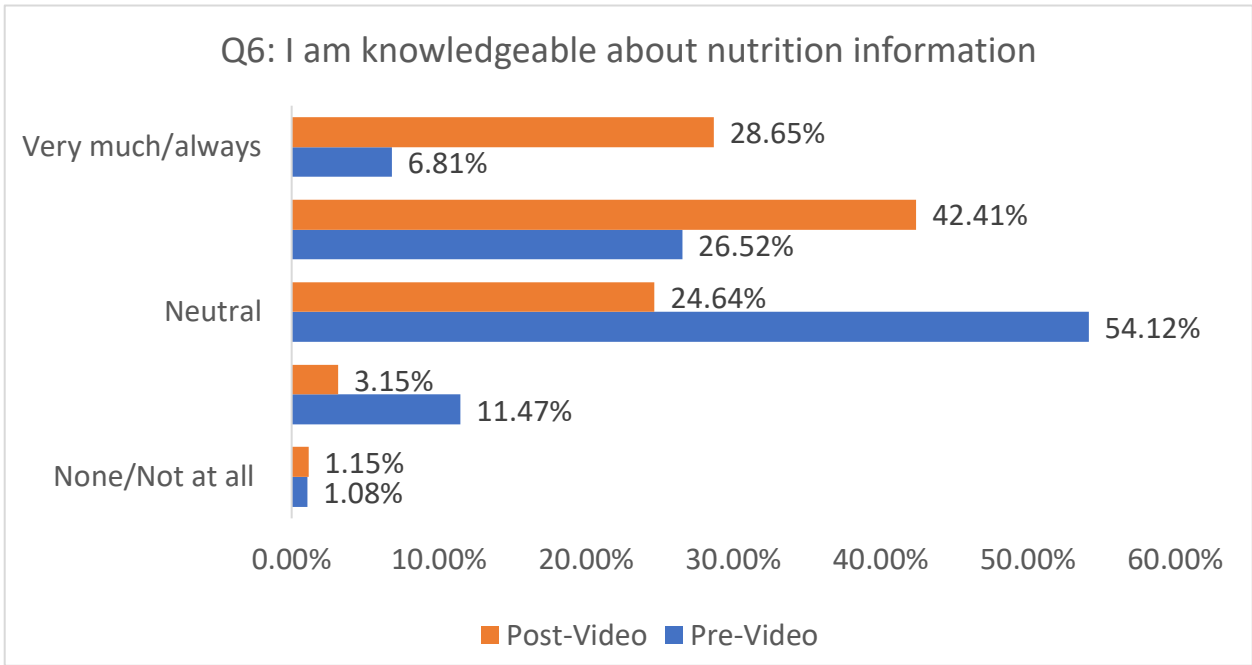
True False Unknown

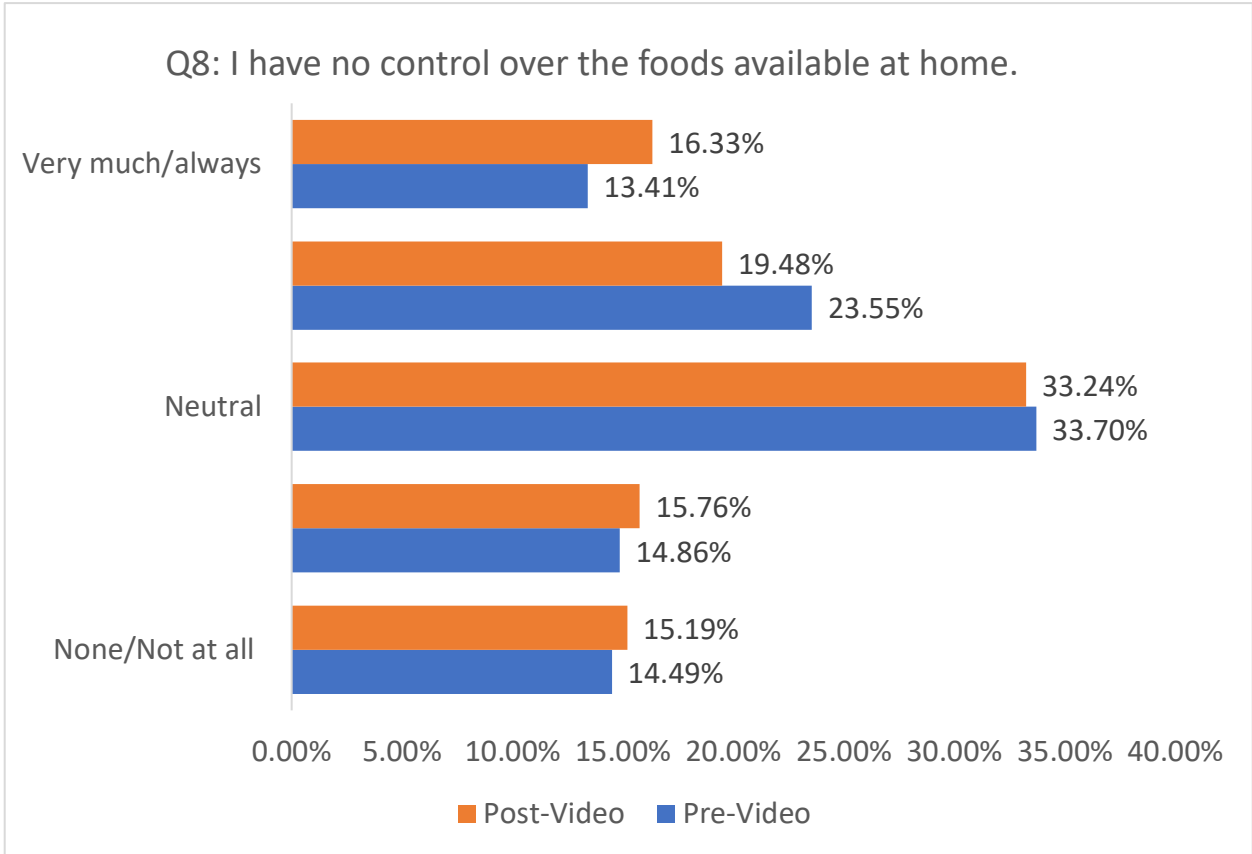
6. Do you think watching the video will help you make better food choices?

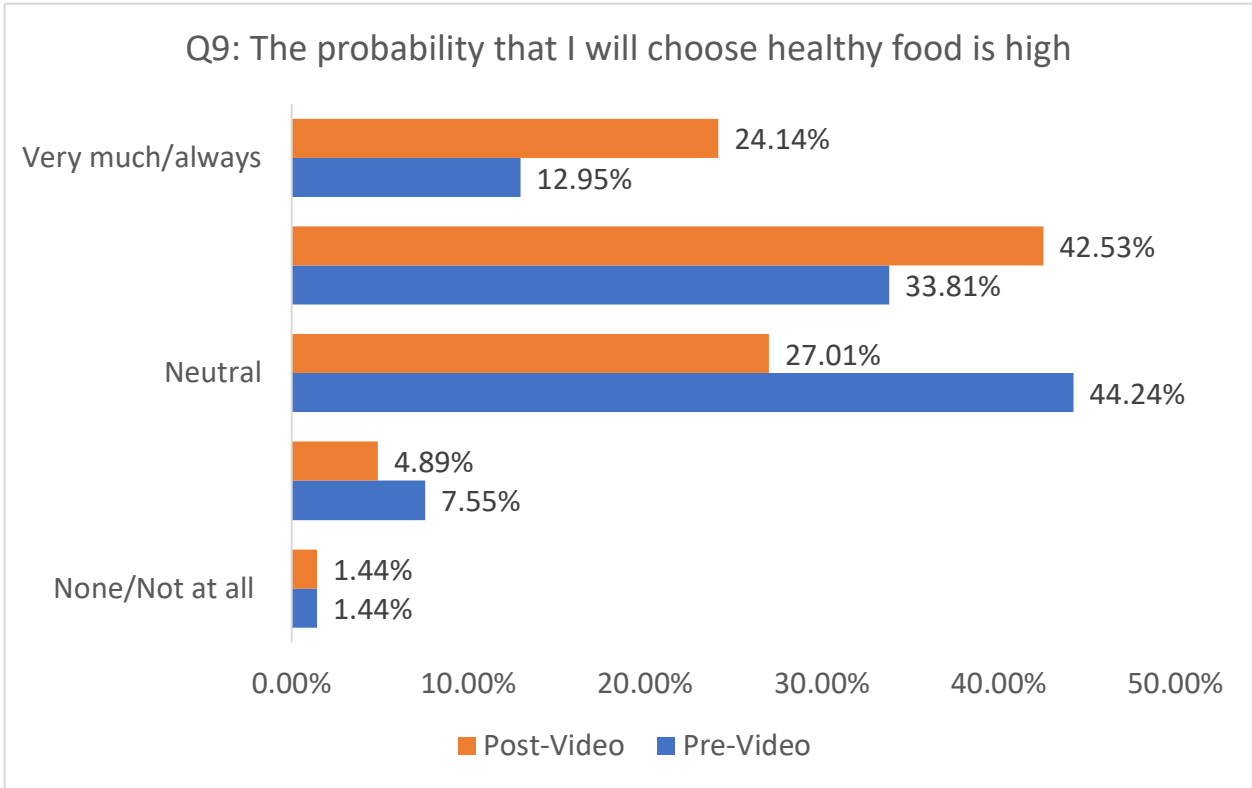
Yes No Somewhat

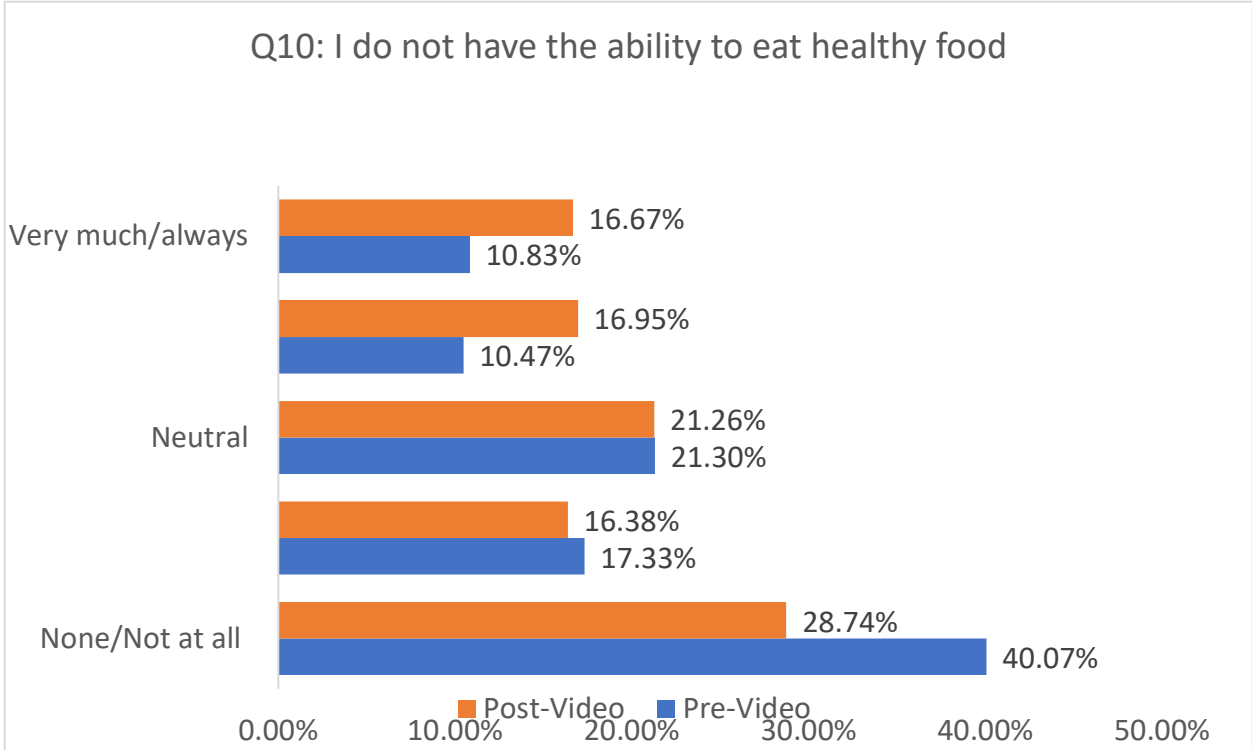
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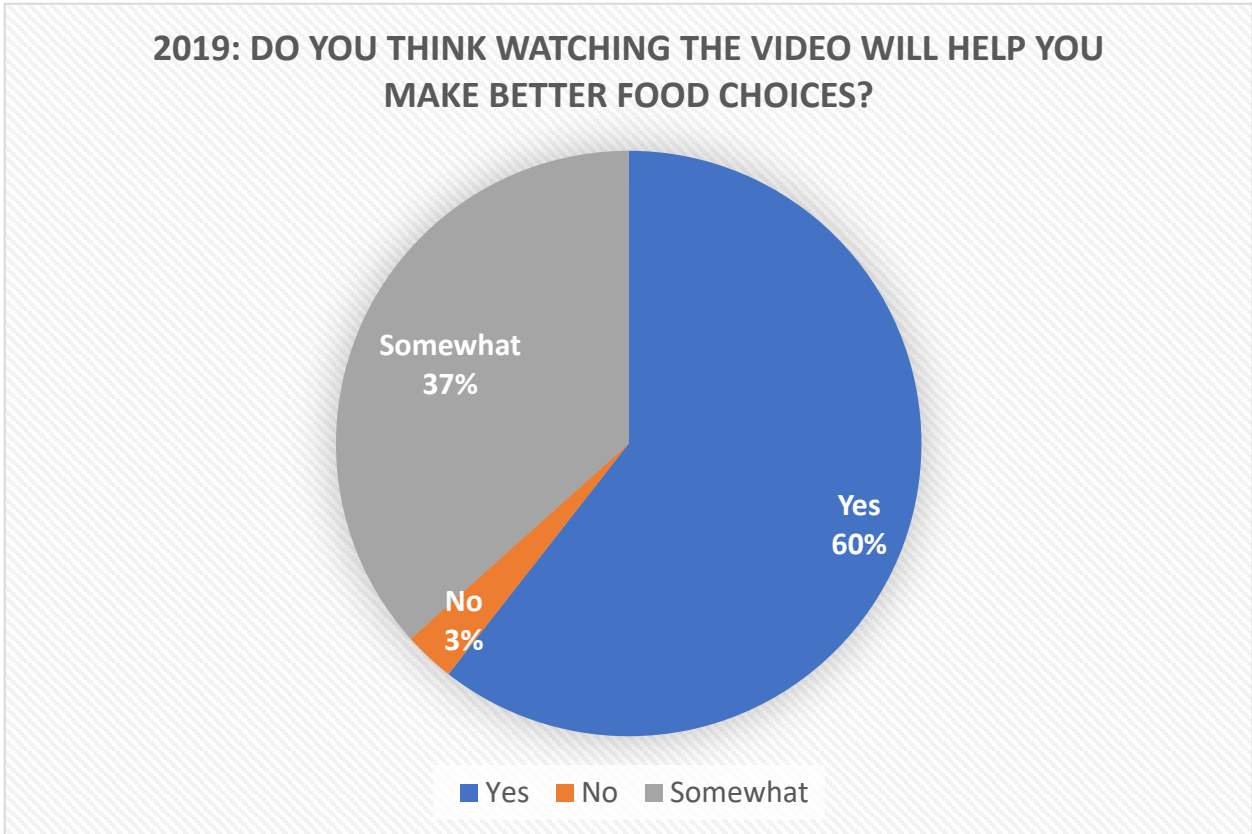












Appendix P

DNP Statement of Non-Research Determination Form

Student Name: Fanny Powell

Title of Project: Enhancing Nutrition Education, a Preventive Health Measure, During a Community Outreach Clinic in Central Valley

Brief Description of Project:

A) Aim Statement: Will providing nutrition education to high school athletes improve their nutrition knowledge and perceived ability to make informed healthy food decisions for improved performance and health?

B) Description of Intervention: Yearly USF provides a pop-up free clinic to the adolescents of Kings Canyon Unified School District organized by the DNP chair and assisted by the author. NP students in collaboration with volunteer community health care providers provide care for the community. The clinic welcomes the district's students and their families to come in for a free health screening. This serves as a preventive health measure for the community as well as learning opportunity for the NP students. Included in this clinic is nutrition education. Although the education module given via video is targeted towards the adolescent student, it is applicable to all. The students watch the video while waiting for their physical, complete a pre and post survey assessing their knowledge and perceived ability to make informed healthy food decisions, and are able to ask questions to their provider (NP student) during their physical.

C) How will this intervention change practice? Eating behaviors of children are heavily influenced by their immediate environment and they spend a majority of waking hours at school. Healthy People 2020 have created specific goals to improve the health of school aged children which includes nutrition. Due to lack of instructional time, funding, and administrative support, California teachers do not routinely instruct on nutrition. If instruction is given it equates to less than 1 school day per year. This intervention helps to fill the gap. It provides basic nutrition education without consuming instructional time from the teachers. Furthermore, the free pop up clinic provides health screening, a preventive health measure, to community members who would not normally get a screening due to financial or time constraints.

D) Outcome measurements: To improve basic nutrition knowledge of adolescent students. To improve adolescents perceived ability to make informed healthy food choices. To provide free health screening to various communities in and around Kings Canyon Unified School District.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (<http://answers.hhs.gov/ohrp/categories/1569>)

x This project meets the guidelines for an Evidence-based Change in Practice Project as outlined

in the Project Checklist (attached). Student may proceed with implementation.

This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *Instructions: Answer YES or NO to each of the following statements:

Project Title:	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	X	
The specific aim is to improve performance on a specific service or program and is a part of usual care . ALL participants will receive standard of care.	X	
The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does NOT follow a protocol that overrides clinical decision-making.	X	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.	X	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.	X	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	X	
The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	X	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	X	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: <i>“This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”</i>	X	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): FANNY POWELL

Signature Fanny Powell of _____ Student: _____
DATE: 3/28/2018

**SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):
Dr. Jo Loomis**

Signature of Supervising Faculty Member (Chair):
DATE _____

Appendix Q

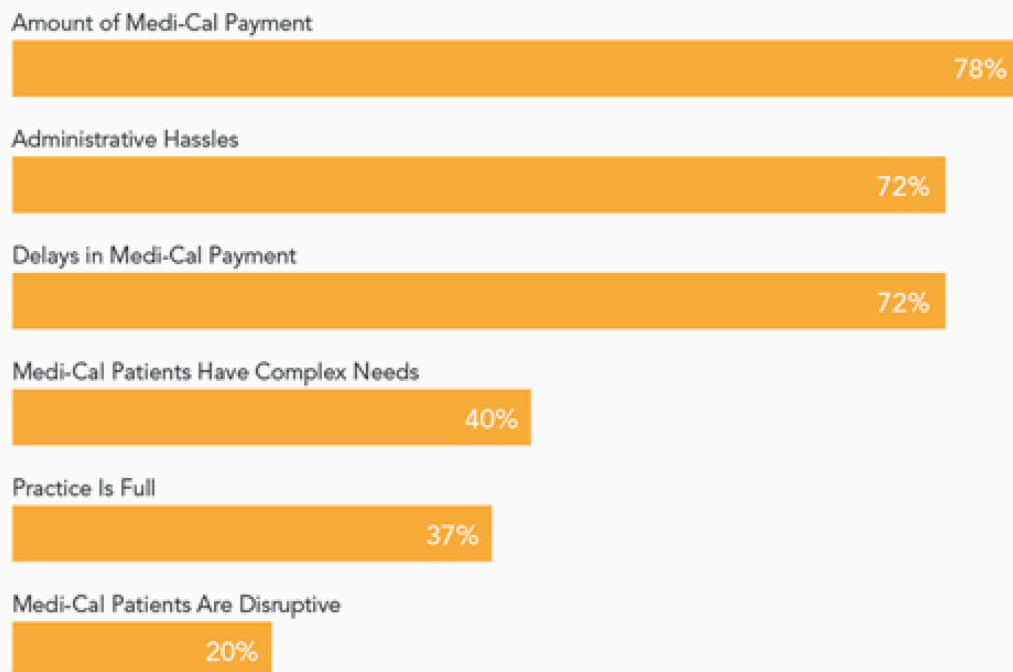
At our yearly sports conference, the students are surveyed and asked what they want or need. They requested additional nutritional information. We are requesting a brief intervention providing this education to our athletes.

Miriam Cardenas

Miriam Cardenas
KCSO Health Center Specialist

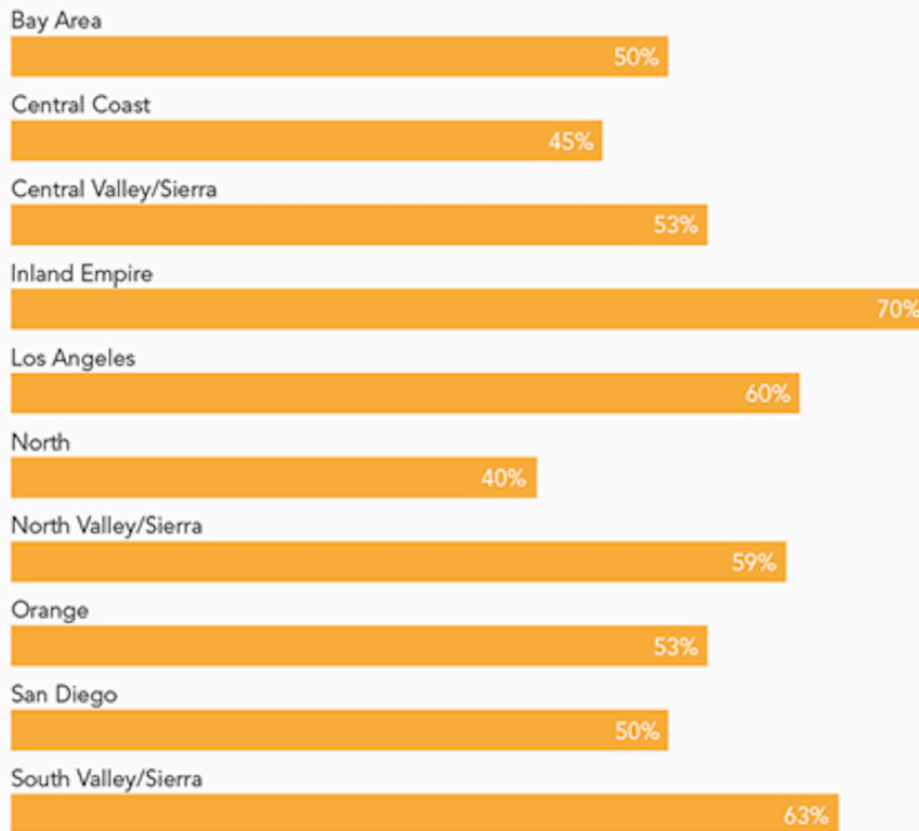
Appendix R

Reasons Physicians Limit Number of Medi-Cal Patients California, 2015



Note: Combines responses from physicians who reported that a reason was very important or moderately important.
 Source: Analysis of 2015 Medical Board of California supplemental survey data by Philip R. Lee Institute for Health Policy Studies at UCSF.

PCPs Accepting New Medi-Cal Patients by California Region, 2015



Notes: Many differences across regions were not statistically significant at $p < .05$. Exceptions include differences between the Inland Empire, the region with the highest rate of accepting new Medi-Cal patients, and the Bay Area, Central Coast, North, and San Diego regions.

Source: Analysis of 2015 Medical Board of California supplemental survey data by Philip R. Lee Institute for Health Policy Studies at UCSF.