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Using an Electronically Delivered and Culturally Based Nutrition Module to Educate Latino Parents

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Executive Summary

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Problem

In a pediatric clinic located in Northern California, the population of Hispanic and Latino (henceforth called the Latino population) patients nears 85%. Many of the parents express concern about their child's weight and/or nutrition. These issues have led to the development of a research question: In the absence of current culturally based nutrition education at a northern California pediatric clinic, will a Latino and technology based nutrition education modality for the delivery of nutrition education to parents of Latino patients ages one year to 18 years old increase their nutrition knowledge?

Purpose

The purpose of the study was to improve outcomes in the parents' nutrition knowledge in order to improve the patients' health status and promote future healthy nutrition behaviors.

Goals

The goals of the project were to see immediate evidence of increased nutrition knowledge in parents and decreased provider time spent on basic nutrition education. The long-term goal was to see the amount of provider time spent on basic nutrition education during a well-child visit decrease and to see the clinic's obesity prevalence rate drop and maintained. This long-term goal is not within the scope of the current project.

Objectives

The outcomes objectives included high participation rates and number of surveys completed; significant increases in knowledge post-survey as compared to pre-survey; immediate evidence of increased nutrition knowledge; and decreased provider time spent on basic nutrition education allowing more time on patient-tailored education.

Plan

The project was a quasi-experimental pre-test post-test quantitative design. The primary outcome measures for the project included the difference between the pre-test knowledge survey from the post-education module survey to determine the immediate impact of nutrition education. The survey had a multiple-choice design. Upon completion of the survey, the participants were instructed to watch a short (six min) nutrition education module on fruits and vegetables delivered though iTunes on an iPad.

Outcomes and Results

The paired samples t-test revealed there was a significantly higher average knowledge score on the post-test than the pre-test, $t(129) = -2.364$, $p<0.05$. This project provides a framework for future studies involving the use of culture and technology based nutrition education modules.

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In a pediatric clinic located in Contra Costa County in Northern California, the population of Hispanic and Latino (henceforth called the Latino population) patients nears 85% (M. Perez, personal communication, January, 20, 2014). Many of the parents express concern about their child's weight and/or nutrition. The majority of these parents are immigrants or first generation citizens coming from a different cultural background. The Hispanic and Latino population of the city of Richmond, California, makes up 39.5% of Richmond's population according to the 2010 United States (US) Census. This percentage represents the ethnic majority in the city and is considered to be a vulnerable population. The number of Hispanics/Latinos in Richmond is higher than the total percentage of Hispanic/Latinos within the state of California (37.6%) (US Census Bureau, 2014).

A vulnerable population is one that has increased risk for poor health, in both susceptibility and outcomes. Vulnerable populations may have the following characteristics: lower socio-economic status, uncertain immigration status, limited English skills, low level of education, and may be targets of stigma (Derose, Escarce, & Lurie, 2007). The majority Richmond residents have not attained a high school diploma and live well below the federal poverty line, rendering them vulnerable (Brunner, Kroch, Reilly, & Rattray, 2011).

The prevalence of obesity in Contra Costa County is high, and the highest percentage is found in the city of Richmond. Thirty-two percent of Richmond elementary students are considered to be obese, with 33% of that number being of Latino heritage. Low levels of education, low socio-economic class, and unemployment are associated with obesity in immigrant populations. Obesity is also associated with decreased access to healthcare services, due to lack of health insurance and language barriers (Gordon-Larsen, Harris, Ward, Popkin, & National Longitudinal Study of Adolescent Health, 2003; Kaplan, Huguet, Newsom, &

McFarland, 2004; Marshall, Urrutia-Rojas, Mas, & Coggin, 2005). Obesity is related to the development and death from chronic diseases such as cardiovascular disease, diabetes, cancer, and also from all-cause mortality.

Nutrition is a key factor in combating obesity and the chronic diseases of diabetes, cancer, and cardiovascular disease (Heron, 2009). A diet high in fruits and vegetables can prevent the occurrence of these chronic diseases. Healthful nutrition is a topic that needs to be addressed from a healthcare perspective, especially amongst the Hispanic/Latino population who reportedly eat the most fruit (37.2%) in the nation but the lowest amount of vegetables (19.7%) (CDC, 2010b).

Problem Recognition

The increased prevalence of obesity in Contra Costa County and its associated consequences have led to the development of the research question: In the absence of current culturally based nutrition education at a northern California pediatric clinic, will a Latino and technology based education modality for the delivery of nutrition education to parents of Latino patients ages one year to 18 years old increase their nutrition knowledge? This question follows the outline of population/problem, intervention, comparison, and outcome [PICO] (Sackett, Richardson, Rosenberg, & Haynes, 1997). Population: parents of the Latino patients ages one to 18 years at a northern California pediatric clinic; Intervention: the delivery of culturally based nutrition education to the population; Comparison: no current culturally based nutrition education; Outcome: increased parental nutrition knowledge.

Theoretical Foundations

Leininger (2007) developed the Cultural Care Diversity and Universality theory to guide providers in care delivery for patients from different cultural backgrounds and lifestyles.

Increased nursing awareness of the patient's perspective of the illness and their personal illness experience allows the nurse to provide culturally congruent care for the patient and family. Ultimately, the giving and receiving of culturally congruent care will increase patient health and better nursing care. Leininger (2007) discusses the emic view, which consists of the expression, beliefs, and practices as related to an individual culture versus the etic view, which are the practices and beliefs held consistent across many cultures. When creating a nutrition education module to deliver to Latino parents, the emic view of the subjects must be intentionally included.

Multiple research studies utilize Leininger's model of care to examine how cultural differences impact healthcare needs (Plowden, 2006; Plowden, John, Vasquez, & Kimani, 2006; Thibodeaux & Deatrick, 2007). The patient population at the pediatric clinic consists of a number of patients of Latino descent. The nutrition education module used considers cultural differences and thoughtfully incorporated this knowledge into its development.

The second theory framework chosen for this study is Adult Learning Theory. Andragogy is the concept of how adults learn. Included in this concept are five underlying points: self-directed learning; previous life experience; learning motivation due to life demands; internal motivation; and immediate use of new learning knowledge (Knowles, 1980). Due to these assumptions, adult learning theory recommends the learning environment for adult learners is one of mutual respect and sharing of common ground between the teachers and the students. The Capstone Project aimed to create an environment where the parents felt comfortable and curious about learning. The use of the multimedia module for nutrition education allowed the participants to re-review the information at their leisure while waiting for the provider. This created a self-directed learning environment where the parent can then take their new knowledge and apply it the same day.

The role of a Doctorate of Nursing Practice (DNP) trained nurse in this study is clinical prevention and population health. In this aspect of DNP nursing the DNP plans, implements, and evaluates interventions that promote health and attempt to improve health care equality for individual patients or whole populations (Schadewald & Pfeiffer, 2014).

The population in this research was the parents of the pediatric patients at the clinic and the purpose was to improve the population's nutrition knowledge. The purpose of providing culturally relevant nutrition education to the parents of pediatric patients was to increase nutrition knowledge. Ideally this helps improve the overall population health of the Latino patients in the clinic. The benchmark target of this study was to see an increase in nutrition knowledge from before the intervention to after the intervention. This has been demonstrated in other studies that utilized nutritional education interventions (Broyles, Brennan, Herzog, Kozo, & Taras, 2011; Jantz, Anderson, & Gould, 2002; Oenema, Brug, & Lechner, 2001; Thompson, Joshi, Hernandez, Jennings, Arora, & Ellen, 2012).

The purpose of the study was to improve outcomes in the parents' nutrition knowledge in order to improve the patients' health status and promote future healthy nutrition behaviors. Traditionally, the nurse imparts nutrition education during a well-child visit, making nutrition knowledge a nurse-sensitive outcome. The creation of a culturally based nutrition education module to use with many patients to teach nutrition basics allows the nurse more time to tailor the visit to specific patient concerns and more opportunities to share advice, findings, and health care knowledge that will potentially impact the patient's overall health.

In summary, this study examined the effect of a technology delivered, culturally based nutrition education module on nutrition knowledge. The population involved was the parents of pediatric patients ages one to 18 years in a northern California pediatric clinic.

Literature Review

The literature review was performed using the databases CINAHL, Google Scholar, and PubMed. The initial search reference time frame was 2000-2014. The keywords 'Hispanic; cultural; food; and intervention' in a Google Scholar search yielded 38,700 results. 'Nutrition; exercise program' found 401,000 results on Google Scholar while 'child; vegetables; and family' led to 40,600, while 'Hispanic; nutrition; education' showed 52,400 on Google Scholar. In the PubMed search engine, the keywords 'diet; Latinos; culture' revealed 744 results; 'Nutrition; Latino youth; education' showed 175 results; and 'Hispanic; nutrition; education' came up with 777 results. A CINAHL search of 'weight loss; pediatric' resulted in 396 results, while a search of 'obesity; child; United States' came up with 1,318 articles; 'cultural; nutrition; Latino; education' yielded 21 results; and 'Hispanic; nutrition; education' came up with 139 results.

The keywords 'Hispanic; nutrition; education' in all search engines yielded the most pertinent results, including many articles detailing research studies on top of the evidence pyramid, such as systematic reviews and randomized controlled trials (RCTs). Most of the RCTs used post-intervention surveys with self-reported diet and behavioral pattern change to show behavior change or knowledge increase. This type of data can have some bias since it is based on the patient's perceived lifestyle changes versus quantifiable changes (Carlton, Kicklighter, Jonnalagadda, & Shorrner, 2000; Carroll, Stein, Byron, & Dutram, 1996; Gould & Anderson, 2000; Neuenschwander, Abbott, & Mobley, 2012; Neuenschwander, Abbott, & Mobley, 2013). Using a dietary recall input software program might result in less bias however, that too is based on self-report. Additionally, most of the post-surveys were administered after a short interval following the intervention, such as immediately or up to one to six months later. No study found followed the subjects longitudinally to examine the long-term effects of the education.

Any articles that reflected information on a technology-based teaching method, a parent-education method, or a healthcare office/medically-associated setting were reviewed. These subjects were chosen because of their relationship to the Capstone Project. Google Scholar provided the maximum returns in terms of article quantity. Of the reviewed articles, the RCTs that involved a nutrition education teaching method with a pre and post survey were chosen for inclusion in the Literature Review. A few reports, expert opinions, and cohort surveys were utilized in order to create a comprehensive picture of the subject. The resulting Systematic Review yielded 35 articles. These articles were chosen because their design was closest to the PICO question.

The literature review demonstrated the difference in the amount of nutrition knowledge gained from nutrition education delivered by computer technology versus traditional paper is little to none (Brug, & Van Assema, 2000; Kroeze, Oenema, Campbell, & Brug, 2008). Culturally based education is important to successful learning among Latinos and was best received (Ayala, Baquero, & Klinger, 2008; Broyles et al., 2011; Dave et al., 2009; Evans et al., 2011; Oenema, Brug, & Lechner, 2001; Quintiliani, De Jesus, & Wallington, 2011; Salvo, Frediani,, Ziegler, & Cole, 2012; Thompson et al., 2012). The literature suggested eating habits are often shared within families, suggesting providing nutrition education to parents was as important or more important than educating the children (Gross, Pollock, & Braun, 2010; Koff & Mullis, 2011; Slusser et al., 2011).

These findings demonstrated the feasibility of conducting a study that imparted nutrition education to the parents of pediatric patients rather than the patients themselves. The review also reinforced the necessity of ensuring the module be culturally relevant while highlighting the negligible difference between multimedia and paper delivery systems. This was important to the

development of the Capstone project design because the author was unsure whether or not she would be able to find an appropriate multimedia technology or would need to use a traditional paper information sheet.

Market/Risk Analyses

In immigrant populations, obesity is found alongside the barriers of second language and the inability to access healthcare services or health insurance (Gordon-Larsen, Harris, Ward, Popkin, & National Longitudinal Study of Adolescent Health, 2003; Kaplan, Huguet, Newsom, & McFarland, 2004; Marshall, Urrutia-Rojas, Mas, & Coggin, 2005). Oftentimes chronic diseases are exacerbated by obesity. These diseases include cardiovascular disease, cancers, and diabetes mellitus (CDC, 2011).

The percentage of the annual death rate caused by obesity in a northern California town where the clinic is located is 11% (US Census Bureau, 2014). In this area, the Latinos constitute close to 40% of the population (US Census Bureau, 2014). Spanish is spoken at home by 29.3% of the population (Virginia Commonwealth University Center on Human Needs [VCUCHN], 2014). The majority of the residents has not attained a high school diploma and live well below the federal poverty line, classifying them as a vulnerable population (Brunner et al., 2011). In the 2013 Community Health Assessment performed by Kaiser Permanente, informant interviews revealed the following health care deficiency themes: a) care is needed in the primary language of the patient, b) more health care service options would prevent long waits for appointments, and c) patients require explanation of the necessity of screening and diagnostic care (Kaiser Permanente, 2013).

Driving forces for the project included the Latino population's language barriers and lack of conveniently available wholesome and affordable nourishment (Kaiser Permanente, 2013).

Additional barriers to the clinic's patient population's optimal health include the ongoing confusion with the adoption and individual patient's understanding of the new healthcare format of The Affordable Care Act, and delays in California's assignment of Medicaid benefits (Sorell, 2012; Sun, 2014).

Economic insecurity negatively impacts health in the form of increased obesity in youth and adults, increased hospitalization and death as a result of chronic illness, and increased homicide rates and infant mortality (Kaiser Permanente, 2013). Restraining forces for the project included food deserts are areas that lack sufficient fresh food sources. Six and one half percent of people in the Kaiser Northern California service area live in these 'deserts'. There are a lower than the national average number of available Women, Infants, and Children [WIC] stores. Seventy-two and one tenth percent of adult citizens report inadequate fruit and vegetable consumption. This can lead to adult and youth obesity as well as diabetes complications. Heart disease, colon cancer, and stroke also increase in prevalence in conjunction with poor diet (Kaiser Permanente, 2013).

This city has a wealth of resources and community programs available to help it meet its health promotion and disease prevention needs (McLean, Wilson, & Kent, 2011). These programs represent opportunities for health behavior change among the clinic's patient population. Sustaining forces for the project include community resources such as the Greater Richmond Interfaith Programs, Urban Tilth, and Healthy and Active Before Five but also public programs such as the Health and Wellness Element (HWE) Program to lend additional support (McLean, Wilson, & Kent, 2011). The city is the first California city to incorporate the Health and Wellness Element (HWE) program into their General Plan (a mandatory California government requirement to guide future city development with a timeline of 15-20 years) for the

city. The HWE focuses on ten areas of improvement for the city. These include increased access to recreational areas, healthy food, medical services, public transportation, and housing; increased job opportunities; and safer environmental practices and neighborhoods. Implementation began in 2012. In order to achieve these goals, the strategy of HWE is to implement citywide policy, neighborhood improvement strategies, and gather data on community indicators and health outcomes (McLean, Wilson, & Kent, 2011).

In the 2007 community-wide survey, the highest rated community characteristics of the city were the openness and acceptance of the community, the quality of new development, and the ability to attend cultural activities (City of Richmond, 2007). Currently, there are a number of public health services that help address areas identified as needing improvement. Groups that work to maintain healthy food access include the City (COR) Planning Division and Community Redevelopment Agency, Richmond Grows, West County Health Eating Active Living (HEAL) Project, and West Contra Costa Unified School District (McLean, Wilson, & Kent, 2011).

Project strengths included in the Strengths, Weaknesses, Opportunities and Threats [SWOT] analysis were the large Latino population of the clinic; and the pediatric nature of the clinic as an optimal site for discussing childhood nutrition. Project weaknesses included the lack of an ongoing method of nutrition education for home use or formal follow up education. This Capstone Project had the opportunity to present nutrition education in primary language of the patient and thus assist in the area's increasing struggle with obesity. The fulfillment of these needs was an opportunity of the project. Potential threats to the project were the attitudes of the medical assistants in the clinic; willingness of patient participation without compensation; and willingness of staff to share input on the development of culturally appropriate education materials. Refer to Appendix A for a diagram of the SWOT analysis.

Stakeholders and Project Team

The internal stakeholders in the Capstone Project included the patients and their parents; the medical providers (one nurse practitioner and one medical doctor); and the five medical assistants. The external stakeholders included families in the community; schools; and health advocacy and community health organizations. The project team was made up of the clinical mentor, Dr. Helaine Pleet, MD; the DNP Capstone Project Chair, Dr. Cris Finn; and the DNP student, Lia Yoon, who is also the nurse practitioner at the clinic. Refer to Appendix C for a diagram of the stakeholders and project team.

Cost-Benefit Analysis

The cost of the project was estimated at $21,115.77. The potential gain of 10 minutes per well-child exam presents a great benefit. Appendix D describes the cost details. The extra 10 minutes can be used at the provider and patient's discretion to discuss other topics that might be of interest to the health and well-being of the patient. In total, the cost of the project will be offset by the benefit in 0.56 years, if seeing a full patient load every day.

Project Objectives

The mission of the project was to determine gains in knowledge following a technology and culturally based nutrition education module. The vision was for the results of the study to act as a guide to determine the best method of nutrition education delivery during a typical office visit. The population consisted of the Latino parents of patients in a pediatric clinic in Northern California. The nutrition module was technology based and paperless, delivered to consenting parents after a pre-module knowledge survey. A post-module knowledge survey was given to determine knowledge increases, gains, or changes.

The goals of the project were to see immediate evidence of increased nutrition knowledge in parents and decreased provider time spent on basic nutrition education. The long-term goal was to see the amount of provider time spent on basic nutrition education during a well-child visit decrease and the clinic's obesity prevalence rate drop and maintained. This long-term goal is outside the scope of the current project.

The outcomes objectives included high participation rates and number of surveys completed; significant increases in knowledge post-survey as compared to pre-survey; immediate evidence of increased nutrition knowledge in parents; and decreased provider time spent on basic nutrition education allowing more time on patient-tailored education. These objectives were completed during the Data Collection timeline (refer to Appendix E).

The process objectives included the creation of a pre-survey and post-survey with previously tested reliability and validity, and acquisition of a Latino culturally based nutrition education module. Additionally a paper handout was created detailing the project and participation agreement. These objectives were completed during the Proposal Oral and Written Defense timeline (refer to Appendix F). Please refer to Appendix E for the Gantt chart representing the entire Capstone Project timeline.

Evaluation Plan

Logic Model

The logic model, found in Appendix E, focused on the best method to deliver culturally relevant nutrition education to the Latino parents of the patients at this clinic. The hope remains that the education of the parents will result in the reaping of the benefits by the patients. If the parents continue to model and promote healthy eating habits at home, the children will take those behaviors with them into adulthood. In the Gross, Pollock, and Braun's study (2010) children

increased their fruit and vegetable consumption if they believed their parents supported the consumption. Consumption also increased if they saw the parents eating fruits and vegetables, and participating in healthy eating habits.

The resources needed to conceive this research project included a nutrition education module; supplies such as paper, computer, printer, and an iPad to present the nutrition education; a facility to conduct the research, in this instance, the pediatric clinic; and willing participants. Refer to Appendix G for the budget analysis.

Activities performed were the creation of a pre and post-survey (including demographics) and acquisition of the nutrition education module. The pre and post-survey included questions regarding nutrition knowledge based on the information presented in the module. The module was accessible through an electronic media platform. Additionally all participants gave their consented by participating in the study (refer to Appendix G for the consent form).

Outputs must be accomplished to appreciate outcomes. Outputs included high participation rates and high number of completed surveys. Short outcomes included immediate evidence of increased nutrition knowledge in parents. The impact is what can be expected in seven to ten years as a result of the project. In this case, there will be decreased provider time spent on basic nutrition education and more on patient-tailored education.

Methods

Outcome Measures

The study was a quasi-experimental pre-test post-test quantitative design. The primary outcome measures for the project included the difference between the pre-test knowledge survey and the post-test survey to determine the immediate impact of the nutrition education. The survey had a multiple-choice design. Refer to Appendix H for the pre-test knowledge survey and

to Appendix I for the Post-Test Knowledge Survey. The post-survey tool had the same questions in a different order from the pre-test. Each survey was given on a separate piece of paper. The ABC order of question responses was also changed. This was done to prevent the participant from going back to change their answers. The content of the survey was created based on the nutrition education module content. The Flesch-Kincaid Grade Level Readability Test was used to determine readability. The Flesch-Kincaid Reading Ease score was 91.3 on a scale of 0-100, where a higher score is indicative of higher ease of reading and a reading grade level of 1.6 (Readability-score.com, 2014). The reliability was established with a test-retest method using a 20-person sample after Institutional Review Board [IRB] approval. The Cronbach's Alpha value was found to be 0.632. The survey was reviewed by a pediatric medical doctor and approved for validity of content.

Construct validity was measured by giving the survey to two different groups (10 people each). One group was assumed to already have nutrition knowledge (by parent participant self-identification) and the other to have minimal knowledge (by parent participant self-identification). The demographics associated with good nutrition knowledge include women, those individuals who have more education, and higher socio-economic level. The comparison of the two extreme groups showed the group with nutrition knowledge as scoring higher in an independent sample t-test ($p<0.05$), establishing the construct validity of the survey.

Ideally in the future, nutrition education modules would be viewed during all annual visits, with different modules covering various key nutrition topics based on the age of the patient. This would allow the provider to spend less 'talk time' on nutrition principles and more time on patient-tailored topics.

Study Variables, Design, and Data Collection

The independent variable was the delivery of the nutrition module to the study population. The dependent variable was a significant increase in nutrition knowledge as evidenced by higher post-test survey scores than pre-test scores. The extraneous variables included sample population literacy level, technology literacy, accurate translation into Spanish, time to complete the module and survey, willing participation, and availability of technology to deliver the module.

The study design (quasi-experimental pre-test post-test quantitative design) was as follows: The participants were recruited by asking for voluntary participation when they were placed in the exam rooms by the medical assistants. The medical assistants or the nurse practitioner offered the consent form (refer to Appendix J) to voluntary participants. All participants were assured the care for their child would not be affected by participating or non-participation. After consent was established, a paper pre-survey of nutrition knowledge was administered in the exam room. Each survey was labeled with the room number of the participant in order to link the correct pre and post survey together. Upon completion of the survey, the participants were instructed to watch a short (six minute) nutrition education module, delivered though an iTunes on an iPad. The module was pre-loaded and required the clicking of the play button by the participant. Following the presentation, a post-survey (labeled with the room number) was administered using the same method as the pre-test. The difference in knowledge scores was calculated. The completed pre and post surveys were stapled together and stored in a folder placed in a locked filing cabinet.

The nutrition education module "What's on MyPlate" was published by Purdue University, Purdue Extension Health and Human Sciences in June of 2012. The content of the module included six, four to seven minute short videos in both English and Spanish about the United States Department of Agriculture's MyPlate nutritional guidelines (Maulding, 2012).

Each video clip included realistic applications shopping, cooking, and physical activity examples appropriate for this culture and community. The videos included clips on fruits and vegetables, grains, dairy, protein, an introduction, and conclusion. For the purposes of this study only the fruit and vegetables clip, six minutes in length, was shown (refer to Appendix K for the clip content). Melissa Maulding, Master's of Science (MS)/Registered Dietician (RD) of Purdue University Extension, granted permission for use of the video clip. The letter of permission to utilize the video is on file. Data was entered into SPSS on a password protected computer kept locked in the office.

The Sample

A sample size of 164 participants was used for an estimated population of 1000 patients. The confidence interval (margin of error) is +/-5%, and the confidence interval is 95% (z=1.96). This sample size had a power of 0.80. The value for p1 is 0.6, and p2 is 0.8. These calculations are for a two-sided test (Brant, n.d.).

The population for this study was the Latino parents of patients. These parents were sampled for the project between the months of January and March 2015, at a pediatric clinic in Northern California. Their participation was voluntary and no compensation was offered. They were asked to participate after they were placed in the patient rooms. There was an announcement posted in the waiting room explaining the study (refer to Appendix L). In a three-month period, the clinic can expect to see at least 400 non-repeat patients.

The majority (>85%) of patients who visit this clinic are of Latino heritage, either new immigrants or first-generation Americans. Inclusion criteria for sampling included being a Spanish or English speaking Latino parent of a child or children at the clinic (one to 18 years old). Exclusion criteria limited the participation of parents with children younger than one year,

or those who had children with medical complications necessitating special nutrition or feeding regimens. The basis for excluding children under one year was due to the different dietary requirements of infants. The aim of the education was to help parents make better nutrition choices at home and thus influence the future nutrition habits of their children.

Protection of Human Subjects

Human Subjects protection is very important in any research study. Without federal guidelines for the protection of study participants, there is the potential for subject misuse and abuse. Procedural safeguards have been set up in the form of the institutional review board (IRB), the coding of identifying data, and informed consent. The privacy and confidentiality of the subjects is to be secured beyond question. In this study, no demographic data was collected and no identifiers kept. Informed consent was presented in both Spanish and English to ensure full understanding. Care for the children was not affected by the participation in this study; they all received the same standard of care. Any electronic materials related to the study were stored in a password-protected computer, itself stored in a locked filing cabinet in the primary investigator's office. No coercion was used to make the parents feel obligated to participate in the study. All subject participation was voluntary. All participants could stop participation at any time.

No participant names or demographic data was collected. The pre and post survey was labeled with the exam room number of each patient in order to assure connection between the two surveys. These paper surveys were then stapled together and the data was entered into SPSS. Permission to conduct the study was granted by the Regis University Institutional Review Board and the office owner, Dr. Jose Enz (refer to Appendix L and M respectively). The Regis IRB granted this study exempt approval of research involving human subjects based on the use of survey procedures and the non-collection of demographic/identifying participant data.

Additionally, the principal investigator and DNP Capstone Chair both completed CITI training (refer to Appendix N).

Time Line

The study's plan from the writing of the proposal to the final submission of the paper for publication had a timeline of one year. The period of time for data collection took three months, with the subsequent data analysis lasting another three months. Refer to Appendix E for the project's timeline in the Gantt Chart.

Budget and Resources

The budget for the capstone project included supplies such as paper, computer, and printer to make consent forms and surveys; and iPads or similar electrical device to present the nutrition education. The cost of the business space, the travel cost to the clinic, and the cost of the statistical analysis software are all included in the budget (refer to Appendix G). Additional resources needed included willing participants, electricity to charge devices, sufficient time for administering the module to the patient and the help of the medical assistants in the clinic to answer questions regarding the survey and education module.

Data Analysis

The plan for data analysis began with the calculation of the knowledge score, which represents the number of questions answered correctly on the survey. Each correct answer received a score of 1, and each wrong answer was scored as 0. Any question with more than one multiple-choice answer selected was counted as a wrong answer. Any unanswered questions resulted in that participant's survey being discarded thus eliminated from the study.

The paired samples t-test evaluated the differences in mean between the knowledge scores of the pre and post-test. This test was used because of the data's normal distribution, as demonstrated by the Shapiro-Wilk test of normality on the data ($p<0.05$).

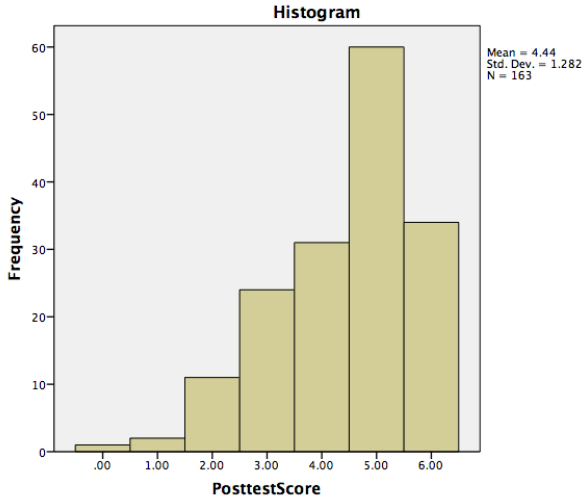

Figure 1. Histogram of the pre-test knowledge score

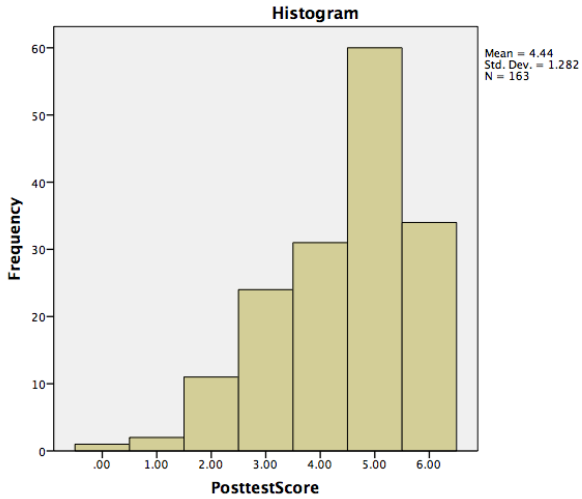

Figure 2. Histogram of the post-test knowledge score

The knowledge testing assisted in demonstrating the immediate impact of the educational intervention. Without the statistical data analysis, the numbers represented by the knowledge scores would have no value to clinical practice. By determining whether or not a significant increase in participant knowledge follows the intervention, it is possible to decide whether or not

the intervention should be recommended for incorporation into regular medical practice as best practice or a quality improvement annotative.

Findings and Results

Minor descriptive data (mother/father status) was collected to protect the identity of the participants and patients. There were 26 fathers surveyed and 138 mothers. The paired samples t-test revealed there was a significantly higher average knowledge score on the post-test than the pre-test, $t(163) = -3.702$, $p<0.01$. The final sample was n=164.

There was a positive correlation of .480 showing that those who scored higher on the pre-test were more likely to score higher on the post-test.

Findings from the statistical analysis of the knowledge scores are presented in the Table 1. The mean and range (within a 95% confidence interval) are listed for both the knowledge score totals. Additionally the p value for the pre and post-test score differences is included.

Table 1

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PretestScore	4.0305	164	1.34038	.10467
	PosttestScore	4.4207	164	1.30588	.10197

Table 2

Paired Samples Correlations

		N	Correlation	**Sig.**
Pair 1	PretestScore & PosttestScore	164	.480	**.000**

Table 3

Paired Samples Test

		Paired Differences					t	df	**Sig. (2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PretestScore - PosttestScore	-.39024	1.34990	.10541	-.59839	-.18210	-3.702	163	**.000**

Reliability

Reliability refers to the idea the results of the measure being employed can be reproduced under the same circumstances. Reliability is affected by random error (Kane & Radosevich, 2011). Examples of random error that could have occurred in this study design include: failure to answer survey questions, coding and data input errors, translation errors, unfamiliarity with media technology and utilization, poor internet connection, and technology failure. These threats are addressed through the use of the translation services of native Spanish language speakers, review of surveys to ensure completion, review of coding and data input, and clear instruction to the participants on how to use the media technology. The Internet connection was through a Wi-Fi network. There was no back up connection if it went down but because the office uses electronic medical records. During the course of the study, there was no loss of Internet connection. If this had occurred, the study would have been halted until the issue was resolved.

Validity

The concept of validity refers to how close the measure is to actually measuring what was intended. Error produced by bias affects validity. Internal validity is whether or not a causal conclusion can be made. External validity defines how well the findings of the study can be applied outside of the study.

Due to the nature of the one group pre-, post-test design, threats to the validity of this study include history, instrument failure, the ability to generalize results from the study, maturation, and testing of the tools (Kane & Radosevich, 2011). History included the time elapsed since the intervention; maturation of the study participants and whether or not their level was generalizable to others; testing can sensitize the participants to the content and result in inaccurate increases in summed knowledge scores; instrumentation could cause a threat if the manner of intervention delivery (including timing and presentation) changed during the time of the data collection. Generalizability, or the external validity of this study, could have been affected by the concept of novelty. The participants might have lost their attention during the education module or not put effort into the survey because they were tired or their child was fussy (Kane & Radosevich, 2011). Threats to validity were minimized through the use of a short and entertaining nutrition education module, consistent delivery of instrumentation and time span of intervention to post-survey, and confining the sample to the specified age range.

Discussion

Evidence-based Practice Questions

The data collected in this study demonstrated that the module significantly increased nutrition knowledge in study participants. The finding that culturally sensitive obesity interventions, such as nutrition education, play an important role in the development of healthy

eating practices among Latinos has previously been demonstrated in other studies (Baughcum et al., 1998; Kaiser et al., 2001; 2002; Sherry et al. 2004). Increasing parental nutrition knowledge is important because it directly impacts children's lifestyle habits as well as their ability to maintain a normal weight (Davison, Francis, & Birch, 2005).

The findings of this study propose such a program could significantly impact pediatric care because of the potential for the use of a similar module during office visits to increase patients' general nutrition knowledge and lifestyle habits. This would provide a diversion for patients while they are waiting as well as allow the provider to spend more time during each visit for individualized nutrition education. The technology-based platform was well received by the study participants. There were no issues with the use of the technology. In each encounter with a participant, either the parent or the child was able to operate the iPad without further instructions.

The parents themselves shared anecdotal feedback that the module was informative and some even referenced the module during the well child check when the provider asked about food consumption. The results of this study are in agreement with other similar research studies that found increased knowledge following nutrition education (Broyles, Brennan, Herzog, Kozo, & Taras, 2011; Jantz, Anderson, & Gould, 2002; Oenema, Brug, & Lechner, 2001; Thompson, Joshi, Hernandez, Jennings, Arora, & Ellen, 2012).

More mothers than fathers were included as participants in the study because there were more mothers present during office visits. This is consistent with the traditional role of Latina women in the family unit as the primary caregiver for the children. This differs from the role of the Latino father who is expected to financially provide and protect the family (Galanti, 2003).

The participants could elect to view the module in Spanish or English. The incorporation of a language choice for the modules made them more Latino-culture sensitive. Additionally, the

moderator in the Spanish language module was a Latina woman, while the moderator in the English language module was an African American woman. This may have increased the perceived pertinence of the education in the participant's mind. In order to ensure the efficacy of interventions used with the Latin population it is important to include cultural considerations. The additional work of addressing obesity might otherwise be seen as a burden instead of an essential preventive health intervention (Lindsay, Sussner, Greaney, & Peterson, 2011). Using culturally sensitive interventions helps impart social context to established patterns and assists in the integration of the new information into actual practice (Lindsay, Sussner, Greaney, & Peterson, 2011).

The practice of feeding children is an integral part of Latino culture's parenting style (Lindsay, Sussner, Greaney, & Peterson, 2011). Latina mothers consider the quality of foods consumed more important than the actual weight of the child themselves (Sherry et al., 2004). The cross-sectional study by Dave et al. (2009) established that among the parents of low socioeconomic status Latino children, ages 5-12 years, there were significant correlations between high rates of acculturation (mimicking the adopted culture) and food insecurity with low fruit and vegetable intake. The use of the fruit and vegetable module as opposed to a different food group was chosen because of this evidence-based finding. Additionally, a cross-sectional study by Salvo, Frediani, Ziegler, and Cole (2012) purport the types of food and intake portions vary based on ethnic background amongst low-income minority children. Making nutrition education content culturally relevant plays a role in its efficacy. It is also important for obesity prevention because a diet where the majority of the nutrients come from fruits and vegetables helps prevent obesity and chronic disease development (Heron, 2009). This was one of the reasons the "What's on MyPlate" fruit and vegetable education module was chosen (Maulding,

2012). Without proper knowledge about food portions and content, it is difficult for individuals to make informed choices (Kaiser Permanente, 2013).

Theoretical Support

There was anecdotal evidence for support of Adult Learning Theory, which is one of the theories that provided framework for this project. One of the tenets of this theory is the ability for adults to apply what they learn immediately to appropriate situations (Knowles, 1980). During well child checks with parents who viewed the module, there were several instances where the parent reminded the patient of something mentioned in the video in regards to their fruit and vegetable consumption. Already, in the clinic, the adult learners were applying their new knowledge to their situation. These incidences clearly reinforced the value of the educational modules in this new interactive format.

Limitations

There is no measure to determine whether the nutrition education had any long-term impact on personal nutrition practices or whether the parent's new knowledge affected the child's current and future health practices. It would also be helpful to know the effect of nutrition education modules on ethnic groups other than Latinos or if the significant difference in knowledge was limited to only this group. Only one clinic was used in this study, making it unclear if the results would be similar in other locations. The data collection was during a limited period of time, only three months and only with Spanish and English speakers. Whether or not the multimedia tool would result in a significant difference in knowledge if provided in other languages or over a longer period of time is unclear. The only module evaluated was the fruit and vegetable module. There are several other modules on the "What's on MyPlate" DVD including

information on dairy, grains, and proteins (Maulding, 2012). The other modules need to be evaluated in the same way to determine their impact on the nutrition knowledge.

Contributions to Advanced Practice Nursing

Advanced practice nurses play a major role in health promotion and disease prevention efforts (Schadewald & Pfeiffer, 2014). This study enforces the importance of the nurse's role in patient education in order to prevent disease. In this study, a six-minute video made a significant impact on short-term nutrition knowledge, which is encouraging for the larger public health concern obesity carries.

Currently, in this particular pediatric practice, orally delivered nutrition education during an office visit is the standard. The American Academy of Pediatrics recommends various nutrition guidelines but there are no recommendations on how these guidelines should be delivered to patients (American Academy of Pediatrics, 2015). The use of a technology based education module has the advantage of being more economical and environmentally friendly. The provider can spend more time on individualized questions during the face-to-face visit. If nutrition education became a required component of the well child check, than using a technology-based platform incorporated into the electronic medical record would be a convenient way to check for meaningful application.

Culturally sensitive education materials assure that the learner is more likely to understand and absorb the content. Culturally based education is important to successful learning and reception among Latinos (Ayala, Baquero, & Klinger, 2008; Broyles et al., 2011; Dave et al., 2009; Evans et al., 2011; Oenema, Brug, & Lechner, 2001; Quintiliani, De Jesus, & Wallington, 2011; Salvo, Frediani,, Ziegler, & Cole, 2012; Thompson et al., 2012). Having the nutrition education available in multiple languages is key to improving the participants' knowledge. The

process of developing nutrition education modules in different languages is an endeavor that could benefit the campaign against obesity.

Recommendation for Further Study

More in-depth nutrition education is recommended, possibly a series of videos that could be viewed over multiple clinic visits. It would have been helpful for viewer concentration if the module viewing was shown in a calmer setting; possibly in a setting where ill pediatric patients requesting attention could be cared for by others, freeing parents to concentrate on the module content. To determine the long-term effects of nutrition education, a longitudinal study involving the evaluation of behavior or physical change would be advisable with home visits. This could include measurement of the body mass index [BMI] and/or completion of food diaries done prior to and after the nutrition education across a number of years.

The ability to perform the survey via the technology platform, such as with an online survey would be very convenient for data collection and analysis. A pilot study examining the participant reaction to such a method of surveying would be helpful. Other variables that might be included in future studies could be information regarding the types of food available to the patients, the distance to the food sources, and the quality of the products. Native-born or immigrant status would be a variable to explore to provide information on the degree of educational need based on acculturation status.

Conclusion

Obesity can result in poor health and an increase in chronic disease (CDC, 2011). Currently, 32% of elementary students in a city in Northern California are obese, of which the majority are Latino. It is projected the town's obese adult population will increase to 42% within the next 20 years based on current obesity levels in children (Brunner et al., 2011; Janssen et al.,

2005). Nutrition education during childhood clinic visits is an important component of combatting obesity by teaching about diets high in fruit and vegetables. Teaching parents about nutrition holds promise for the children, who will learn from their mom and dad's eating habits (Gross, Pollock, & Braun, 2010; Koff & Mullis, 2011; Slusser et al., 2011). This study explored parental nutrition education via a technologic and culturally based media and the subsequent gains in knowledge. It discovered that delivering nutrition education to Latino parents via an electronic platform during a pediatric clinic visit resulted in a significant gain in short-term nutrition knowledge. This was consistent with current published research findings. The implications based on this finding for the Latino community, obesity healthcare, and nursing include increased awareness of the importance of culturally sensitive nutrition education; the use of the well child check as a platform for nutrition knowledge dissemination; and the successful implementation of a technology based module as a tool for education. Significant improvements in nutrition knowledge can be achieved in the Latino population through the use of a culturally sensitive technologic nutrition education module administered during routine pediatric health care visits.

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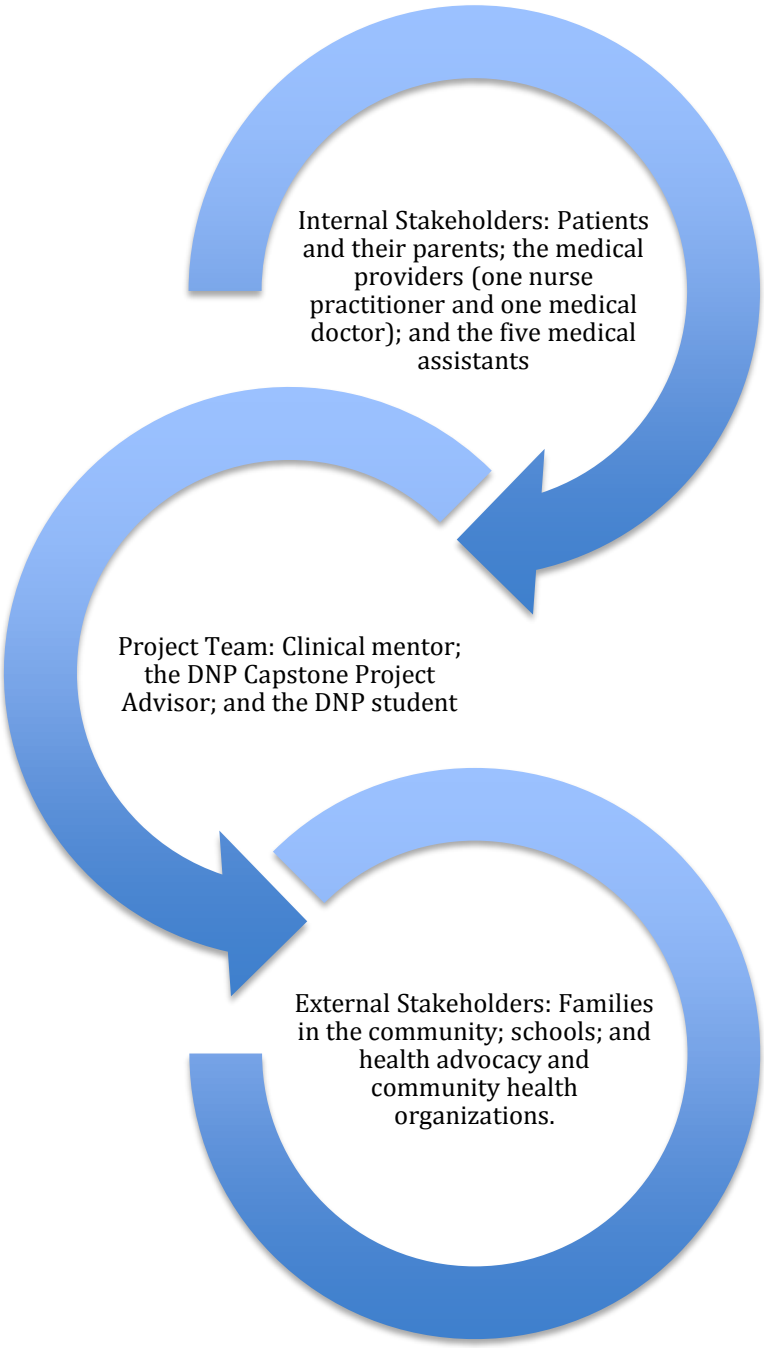
Appendix A
SWOT Analysis

Strengths	Weaknesses
1. The large Latino population of the clinic 2. Pediatric nature of the clinic as an optimal site for discussing childhood nutrition	1. Lack of an ongoing method of nutrition education for home use 2. No formal follow up education
Opportunities	**Threats**
1. Provide nutrition education in the parent's primary language to assist with the area's obesity struggle	1. The attitudes of the medical assistants in the clinic 2. Willingness of patient participation without compensation

Appendix B

Stakeholders and Project Team



Appendix C

Cost-Benefit Analysis

Project Specific Supply Expenses:

Total: $1824

	iPad	Paper	Printer	Computer
Quantity	2	200 pages at $.12/page	1	1
Cost	$500	$24.00	$100.00	$1200.00

Additional Project Expenses:

Total: $3776.64

	Facility	Insurance	Payroll	Transportation	Medical Assistants Training on the Project
Components	Rent: $77.50 Utilities: $920.83	Malpractice: $56.10 Business commercial: $47.22	20 min/assessment x 8 assessments/day=16.25 days to complete 130 subjects (Calculation not including benefits)	$2.83/day	$15.00/hour x 5 assistants x 1 hour
Cost	$103.32	$103.32	$2629.33	$48.16	$75.00

Intangible Expenses

Total: $15,515.13

	Cost of time spent on project	Cost of adjusting an established routine	Risk factor value of client satisfaction
Components	43.23 hours x $58/hour	45 hours x $73/hour (payroll not including	$45/patient/month x 30 patients/day x 17 days of

		benefits	the study
Cost	$2513.33	$3285	$23,950

Total Project Expense: $21,115.77

	Project specific supply expenses	Additional project expenses	Intangible expenses
Cost	$1824	$3776.64	$15,515.13

Benefits

Total: $104.17/day

	Time and effort saved	Money saved	Customer satisfaction	Employee satisfaction
Components	10 min for nutrition education/well-child exam x 10 well-child exam/day	Rate $58/hour	$10 for transportation to come to clinic. Average time in transit and at clinic: 3 hours (90 min at the clinic. 30 min with the provider) Minimum wage/hour: $10.00. Average amount of missed work: 3 hours ($30.00) Total cost of visit for patient: $40.00 (not including insurance co-pay). Extra 10 min for	100 min/day or 10 min/exam to address additional patient questions or concerns

			additional questions with provider gains the patient $7.50 ($.75/min)	
Cost	100 min/day or 10 min/exam to spend on other concerns	$96.67/day	$7.50/well-child exam	$96.67/day

The project's benefit offset the cost within 0.55 years (seeing a full patient load every day).

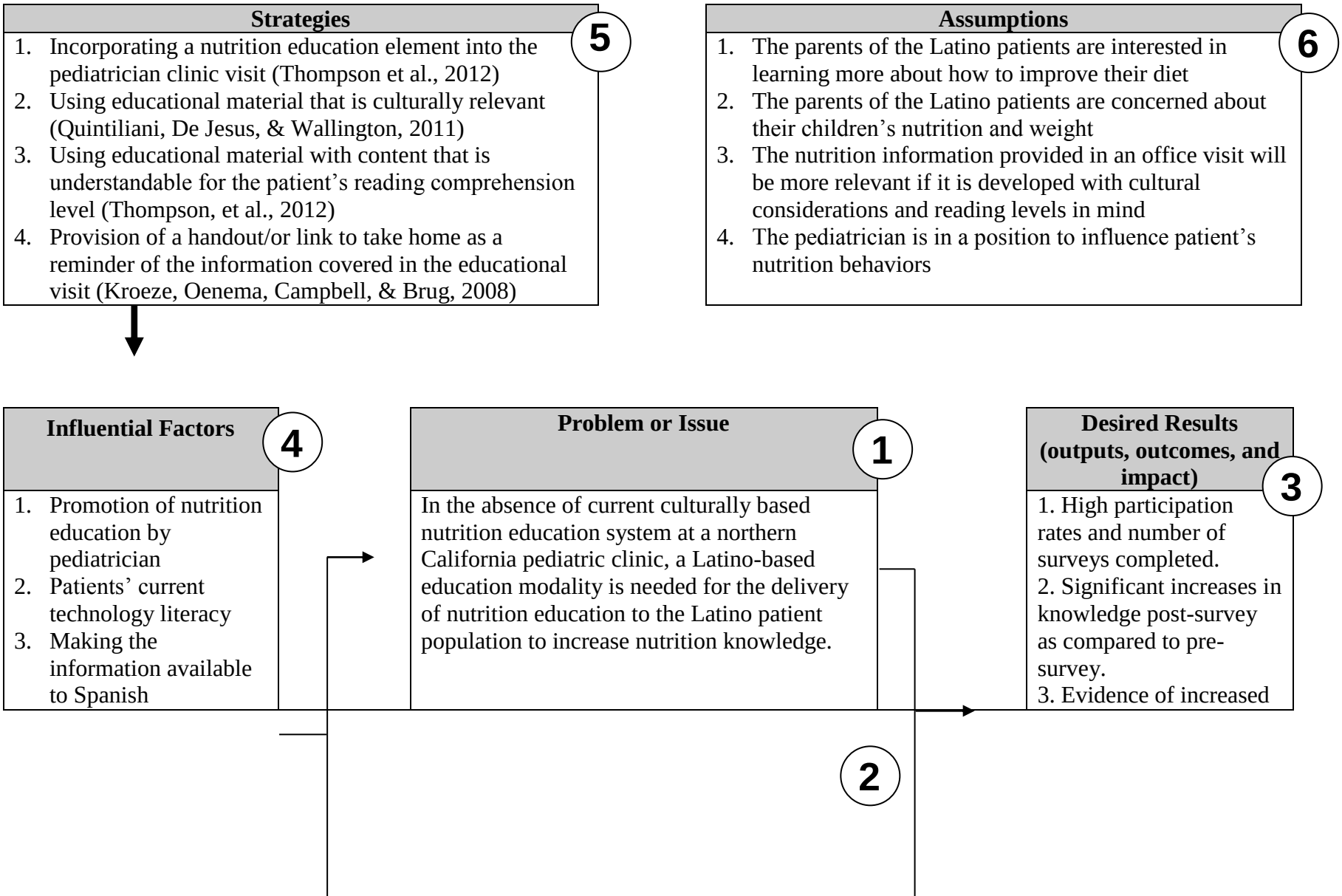
Appendix D

Gantt Chart: Timeline

Tasks	Sept. 2014	Oct. 2014	Nov. 2014	Dec. 2014	Jan. 2015	Feb. 2015	March 2015	April 2015	May 2015	June 2015	July 2015	August 2015
Proposal Oral and Written Defense (Sept 1, ‘14-Oct. 15, ‘14)												
IRB Submission and Approval (Oct. 15, ‘14-Nov. 15, ‘14)												
Data Collection (Nov. 14, ‘14-Feb. 15, ‘15)												
Data Analysis (Feb. 15, ‘15-May 15, ‘15)												
Final Capstone Project Written Paper (May 15, ‘15-July 15, ‘15).												
Oral Defense of Capstone (July 2015)												
Final Submission to Library for Publication (Aug 15, ‘15).												

Appendix E

The Logic Model (W.K. Kellogg Foundation, 2004).



4. Giving the patients information about time management and meal preparations relevant to the appropriate cultural considerations and foods 5. Using culturally and educationally appropriate teaching tools	**Community Needs/Assets** Contra Costa County, where the clinic is located, has a high percentage of obese patients (23.7%) (Centers for Disease Control and Prevention (CDC, 2010a). Low education levels and socio-economic class, and high unemployment rates are associated with obesity in immigrant populations as well as decreased access to healthcare services because of being medically uninsured and having language barriers (Gordon-Larsen, Harris, Ward, Popkin, & National Longitudinal Study of Adolescent Health, 2003). Obesity is related to the development and death from diseases such as cardiovascular disease, cancers, and diabetes mellitus (CDC, 2011).	nutrition knowledge in parents will hopefully be immediate. Then in the next 4-6 years there will be decreased provider time spent on nutrition basics and more on patient-specific interventions. 4. Decreased provider time spent on basic nutrition education and increased time on patient-tailored education.

Appendix F

Budget and Resources

Project Specific Supply Expenses:

Total: $1824

	iPad	Paper	Printer	Computer
Quantity	2	200 pages at $.12/page	1	1
Cost	$500	$24.00	$100.00	$1200.00

Additional Project Expenses:

Total: $3776.64

	Facility	Insurance	Payroll	Transportation	Medical Assistants Training on the Project
Components	Rent: $77.50 Utilities: $920.83	Malpractice: $56.10 Business commercial: $47.22	20 min/assessment x 8 assessments/day=16.25 days to complete 130 subjects (Calculation not including benefits)	$2.83/day	$15.00/hour x 5 assistants x 1 hour
Cost	$103.32	$103.32	$2629.33	$48.16	$75.00

Intangible Expenses

Total: $15,515.13

	Cost of time spent on project	Cost of adjusting an established routine	Risk factor value of client satisfaction
Components	43.23 hours x	45 hours x $73/hour	$45/patient/month x 30

	$58/hour	(payroll not including benefits	patients/day x 17 days of the study
Cost	$2513.33	$3285	$23,950

Total Project Expense: $21,115.77

	Project specific supply expenses	Additional project expenses	Intangible expenses
Cost	$1824	$3776.64	$15,515.13

Resources: Donation of nutrition education module from developers; willing participants, electricity to charge devices, and the help of the medical assistants in the clinic to answer questions regarding the survey and education module.

Appendix G

Consent Form

English

My name is Lia Yoon, FNP-C. I am a Doctorate of Nursing degree candidate at Regis University. My contact information is: 500 Alfred Noble Dr. Suite 255A, Hercules, CA 94547. Telephone #: 510-964-9647. I am conducting a research study entitled "Using a Culturally Based Nutrition Education Module to Educate Parents" which seeks to determine the immediate nutrition knowledge gain after use of the nutrition education module.

I am asking you to participate in this study because you are a Latino parent of a patient between the ages of 1-18 years old. Your participation is voluntary. Choosing not to participate will not affect your access to any goods or services. There are no direct benefits to participating in the study.

I will be conducting the study by asking you 6 multiple-choice questions before and after you view the nutrition video. Participation in this study will take 10-15 minutes, while you are waiting to see the healthcare provider.

I will not be collecting any data that can link you to the answers you provide. Your anonymity and the confidentiality of your responses will be protected as much as possible. If you are uncomfortable answering any question, you may choose to not answer that question or to stop your participation and have any notes, recordings, or hard copy answers destroyed. To further protect the confidentiality of your responses, I will not be collecting a signed consent form but will instead consider your participation in the study as consent permitting me to collect the data you provide.

Should you have any questions or concerns about participation in this study, you may contact me using the information in the first paragraph. My Capstone Chair Faculty Advisor, Dr. Cris Finn, can be contacted at 303-458-4236 or through email: cfinn@regis.edu. You may also contact the Chair of the Regis University Institutional Review Board for human subjects participation by telephone at 303-346-4206; by mail at Regis University, Office of Academic Grants, 447 Main, Mail Code H-4, 3333 Regis Blvd., Denver, CO, 80221; or by e-mail at irb@regis.edu with questions or concerns, or if you feel that participation in this study has resulted in some harm.

Sincerely,

Lia Yoon, MSN, RN, FNP-C

Spanish

Mi nombre es Lia Yoon, FNP-C. Soy una doctorada en enfermeria de Regis University. Me pueden contactar en: 500 Alfred Noble Dr. Suite 255A, Hercules, CA 94547. Telefono#: 510-964-9647. Estoy elaborando un estudio llamado "Utilizando un Modulo de Educación Nutricional basado en la cultura latina para educar a los padres¨ el cual busca determinar el conocimiento nutricional antes y después del uso del modulo de educación nutricional.

Les invitamos a participar en este estudio por ser un padre o madre de paciente latino entre los 1-18 años de edad. Su participación es voluntaria. La participación es anónima y en ningún caso afecta a los beneficios médicos del paciente.

El estudio consta de 6 preguntas de elección de respuesta antes y después de visionar el video de nutrición. La participación en este estudio será de 10-15 minutos, mientras espera por su visita.

No recogeremos ninguna información personal. Su anonimato y la confidencialidad de las respuestas será protegida lo máximo posible. Si se siente incomodo realizando el estudio puede parar en cualquier instante sin necesidad de entregar ninguna respuesta o nota tomada. No recogeremos ninguna hoja de consentimiento pero si consideramos su participación como consentimiento de estudio de las respuestas ofrecidas.

Si tiene alguna pregunta acerca de la participación en este estudio puede contactarnos utilizando la información en este párrafo. Jefe de facultad, Dr. Cris Finn, puede ser contactado a través de teléfono 3034584236 o email: cfinn@regis.edu. También pueden contactar al presidente de la Regis University Review Board para conceptos de participación a través de teléfono: 3033464206, por correo: Regis University, Office of Academic Grants, 447 Main, Mail Code H-4, 3333 Regis Blvd, Denver, CO, 80221. O por correo electrónico: irb@regis.edu para preguntas, preocupaciones, o si piensa que la participación en este estudio le ha causado algún daño.

Sinceramente,

Lia Yoon, MDN, RN, FNP-C

Appendix H

Pre-Test Knowledge Survey

English:

Mother____ Father____

1. How much of your plate should be fruits and vegetables?
    a. 50% of the plate
    b. 25% of the plate
    c. 100% of the plate
    d. 75% of the plate

2. Eating fruits does all of the following EXCEPT:
    a. Prevent strokes
    b. Reduces the risk of heart disease
    c. Reduces the risk of cancer
    d. Increases the risk of diabetes

3. Beans and peas are part of which 2 food groups?
    a. Dairy and Protein
    b. Grains and Vegetables
    c. Vegetable and Protein
    d. Dairy and Vegetables

4. What should a healthy juice label say?
    a. 100% fruit juice
    b. Contains fruit concentrate
    c. 100% fat free
    d. Fruit juice cocktail

5. What is a healthy drink to have throughout the day?
    a. Soda
    b. Water
    c. Juice boxes
    d. Hot chocolate

6. All of the following are good ways to increase exercise during the day EXCEPT:
    a. Parking the car farther from the door
    b. Taking the stairs
    c. Lifting hand weights or walking in place while watching TV
    d. Using the elevator

Spanish:

Madre____ Padre____

1. Qué porcentaje de su plato debería ser fruta y verdura?
    a. 50% del plato
    b. 25% del plato
    c. 100% del plato
    d. 75% del plato

2. Comer fruta complementa todos los siguientes aspectos EXCEPTO:
    a. Previene accidentes cerebrovasculares
    b. Reduce el riesgo de enfermedades de corazón
    c. Reduce el riesgo de cancer
    d. Incrementa el riesgo de diabetes

3. A que dos grupos de comida pertenecen frijoles y guisantes?
    a. Productos lácteos y proteinas
    b. Granos y verduras
    c. Verduras y proteinas
    d. Productos lácteos y verduras

4. Que debería decir una etiqueta de un jugo saludable?
    a. 100% jugo de fruta
    b. Contiene fruta concentrada.
    c. 0% grasa
    d. Cocktail de jugo de fruta

5. Que bebida es saludable para tomar a lo largo del día?
    a. Refrescos
    b. Agua
    c. Jugos de fruta
    d. Chocolate caliente

6. Todos los siguientes puntos son buenas maneras de incrementar el ejercicio al día EXCEPTO:
    a. Aparcar el coche lejos de la puerta
    b. Tomar las escaleras
    c. Utilizar pesas o caminar mientras miras la television
    d. Tomar el ascensor

Answers:

1. A

2. D

3. B

4. A

5. B

6. D

Appendix I

Post-Test Knowledge Survey

English:

Mother____ Father____

1. Eating fruits does all of the following EXCEPT:
    a. Prevent strokes
    b. Reduces the risk of cancer
    c. Reduces the risk of heart disease
    d. Increases the risk of diabetes

2. All of the following are good ways to increase exercise during the day EXCEPT:
    a. Taking the stairs
    b. Parking the car farther from the door
    c. Using the elevator
    d. Lifting hand weights or walking in place while watching TV

3. Beans and peas are part of which 2 food groups?
    a. Grains and Vegetables
    b. Dairy and Vegetables
    c. Dairy and Protein
    d. Vegetable and Protein

4. How much of your plate should be fruits and vegetables?
    a. 75% of the plate
    b. 50% of the plate
    c. 100% of the plate
    d. 25% of the plate

5. What is a healthy drink to have throughout the day?
    a. Soda
    b. Hot chocolate
    c. Juice boxes
    d. Water

6. What should a healthy juice label say?
    a. 100% fat free
    b. Contains fruit concentrate
    c. 100% fruit juice
    d. Fruit juice cocktail

Spanish:

Madre____ Padre____

1. Comer fruta complementa todos los siguientes aspectos EXCEPTO:
    a. Previene accidentes cerebrovasculares
    b. Reduce el riesgo de cancer
    c. Reduce el riesgo de enfermedades de corazón
    d. Incrementa el riesgo de diabetes

2. Todos los siguientes puntos son buenas maneras de incrementar el ejercicio al día EXCEPTO:
    a. Tomar las escaleras
    b. Aparcar el coche lejos de la puerta
    c. Tomar el ascensor
    d. Utilizar pesas o caminar mientras miras la television

3. A qué dos grupos de comida pertenecen frijoles y guisantes?
    a. Granos y verduras
    b. Productos lácteos y verduras
    c. Productos lácteos y proteinas
    d. Verduras y proteinas

4. Qué porcentaje de su plato debería ser fruta y verdura?
    a. 75% del plato
    b. 50% del plato
    c. 100% del plato
    d. 25% del plato

5. Que bebida es saludable para tomar a lo largo del día?
    a. Refrescos
    b. Chocolate caliente
    c. Jugos de fruta
    d. Agua

6. Que debería decir una etiqueta de un jugo saludable?
    a. 0% grasa
    b. Contiene fruta concentrada.
    c. 100% jugo de fruta
    d. Cocktail de jugo de fruta

Answers:

1. D

2. A

3. A

4. B

5. B

6. C

Appendix J

Waiting Room Project Announcement

English

We are happy to announce that we will be conducting a research study in the office to determine the effects of culturally-based Latino nutrition education on the nutrition knowledge of parents.

The nutrition education module is **6 minutes** long about **Fruits and Vegetables**

It will be presented on an iPad. The module and survey will be completed while waiting to see the healthcare provider

Your participation is voluntary. You can stop at any time without penalty or change to your child's care or loss of benefits. All responses to survey questions will remain confidential.

For any questions, please contact:

Primary investigator (PI)/Project manager:
Lia Yoon, MSN, RN, FNP-C
Office phone number: 510-964-9647
Email: Herculesbabies@yahoo.com

Spanish

Estamos contentos de anunciar que realizaremos un estudio sobre los efectos del conocimiento de educación nutricional de los padres de cultura Latina.

El estudio de educación nutricional tiene de duración **6 minutos** y es sobre **frutas y verduras**.

Será proyectado en un iPad. El estudio y el cuestionario seran completados mientras espera para su cita con su medico.

Su participación es voluntaria. Puede negarse a continuar con el estudio en cualquier momento sin ningún compromiso y sin ninguna perdida de beneficios. Todas las respuestas son confidenciales.

Para cualquier pregunta por favor contacte con:

Investigadora-Jefe de Proyecto

Lia Yoon, MSN, RN, FNP-C

Telefono de la oficina: 510-964-9647

Email: Herculesbabies@yahoo.com

Appendix K

Fruits and Vegetable Module Content Six Minute Video Clip from "What's on MyPlate" (Maulding, 2012)

a. Correct portions of fruits and vegetables.
b. Why are fruits and vegetables good for you?
c. Examples of foods and recipes to make at home.
d. Discussion of less-expensive and convenient fruit and vegetable options.
e. Explanation of fruit juice labels.
f. Tips to increase water consumption.
g. Tips to incorporate physical activity into daily routines.

Appendix L

Regis University Institutional Review Board Approval Letter

REGIS UNIVERSITY

Academic Grants

3333 Regis Boulevard, H-4
Denver, CO 80221-1099

303-458-4206
303-964-5528 fax
www.regis.edu

IRB – REGIS UNIVERSITY

November 18, 2014

Ms. Lia Yoon
3639 Market Street, Apt. 2B
San Francisco, CA 94131

RE: IRB #: 14-321

Dear Ms. Yoon:

Your application to the Regis IRB for your project, "Using a Culturally Based Nutrition Module to Educate Parents", was approved as an exempt study on November 18, 2014. This study was approved per exempt study category of research 45CFR46.101.b(#2).

The designation of "exempt" means no further IRB review of this project, as it is currently designed, is needed.

If changes are made in the research plan that significantly alter the involvement of human subjects from that which was approved in the named application, the new research plan must be resubmitted to the Regis IRB for approval.

Sincerely,

Patsy Cullen

Patsy McGuire Cullen, PhD, PNP-BC
Chair, Institutional Review Board
Professor & Director
Doctor of Nursing Practice & Nurse Practitioner Programs
Loretto Heights School of Nursing
Regis University

cc: Dr. Cris Finn

Appendix M

Dr. Jose Enz Approval Letter

Herculean Babies Pediatrics
500 Alfred Noble Dr.
Suite 255A
Hercules, CA 94547
Office number: 510-964-9647
Fax number: 510-569-9656

RE: Lia Yoon, FNP-C, Doctoral Research

To Whom It May Concern:

This letter is to serve as notice that Herculean Babies Pediatrics supports the project proposed by Lia Yoon, FNP-C. Herculean Babies is pleased to support Ms. Yoon in her academic endeavors. We anticipate the results of Ms. Yoon's research.

For this study, Herculean Babies understands that Ms. Yoon will be asking the parents of our patients to participate in the viewing of a nutrition education module and the completion of a pre and post-knowledge survey. We anticipate that if the scope of the study is to change that Ms. Yoon will notify Herculean Babies in advance to the change.

For any questions or concerns please contact Jose Enz, MD at 510-964-9647.

Thank you,

Jose Enz, MD
Owner of Herculean Babies Pediatrics

Appendix N

CITI Certification

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)
HUMAN RESEARCH CURRICULUM COMPLETION REPORT
Printed on 05/06/2014

LEARNER	Lia Yoon (ID: 4147641)
DEPARTMENT	Nursing
EMAIL	lyoon@regis.edu
INSTITUTION	Regis University
EXPIRATION DATE	05/05/2017

SOCIAL BEHAVIORAL RESEARCH INVESTIGATORS AND KEY PERSONNEL

COURSE/STAGE:	Basic Course/1
PASSED ON:	05/06/2014
REFERENCE ID:	12930556

REQUIRED MODULES	DATE COMPLETED
Introduction	05/06/14
History and Ethical Principles - SBE	05/06/14
The Regulations - SBE	05/06/14
Assessing Risk - SBE	05/06/14
Informed Consent - SBE	05/06/14
Privacy and Confidentiality - SBE	05/06/14
Regis University	05/06/14

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Progam course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator