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A Need for a Culturally Congruent Obesity Intervention at a Community Safety-Net Clinic

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Structured Abstract

Background: Obesity is an epidemic in the United States which causes numerous chronic conditions and disproportionally impacts underserved populations. The removal of barriers that prevent active lifestyles such as unaffordable facilities and inaccessibility are of primary importance in promoting a healthy lifestyle.

Objectives: Collaboration with community organizations to increase access to culturally congruent nutrition and exercise classes for underserved Latino/Hispanic patients of a Midwestern safety-net clinic to reduce obesity, increase physical activity, and improve dietary habits.

Methods: Assessment of current practices revealed the need for project development. Six-week nutrition education class and exercise classes were held for eligible patients which evaluated average weight, nutrition knowledge, physical activity, dietary habits during pre and post-implementation. Program satisfaction was also assessed.

Results: Post-implementation data resulted in high satisfaction rates, increased physical activity, increased nutrition education, and improved diet quality indicators. There was a small increase in average weight.

Conclusion: Through accessible, affordable, and culturally-congruent nutrition education and exercise classes, patients showed an increase in healthy habits and knowledge which can improve health in the long-term.

Implications: The development of a program which reduces barriers for underserved populations has been shown to be well received and effective in improving lifestyle habits.

Keywords: Obesity, physical activity, nutrition, chronic disease management, cultural congruence, underserved populations

Introduction

Obesity has become an epidemic in the United States. It is known to cause and worsen progression of numerous debilitating chronic conditions such as type 2 diabetes mellitus (T2DM), nonalcoholic fatty liver disease, cardiovascular disease, dyslipidemia, osteoarthritis, certain types of cancers, and mortality. Within the United States, prevalence of obesity has increased every year with 39.8% of adults over 20 years old having a body mass index (BMI) equal to or greater than 30 in 2016, thus categorizing these individuals as obese (Hales et al., 2017).

Obesity in the United States impacts populations disproportionately with its highest prevalence being in Hispanic-origin groups (47%) and non-Hispanic black (46.8%) adults compared to non-Hispanic white (37.9%) or non-Hispanic Asian (12.7%) adults (Hales et al., 2017). Factors such as having low education, a low household income, being an ethnic minority, being uninsured, and other markers of low socioeconomic status (SES) increase the risk of obesity, as well as risk of chronic diseases, such as T2DM and hypertension. Costs associated with obesity are estimated to be $147 billion per year in the United States and continue to increase annually (Trivedi et al., 2015). As obesity in the United States rises, the risk of many chronic diseases which lead to a decreased quality of life, increased financial burden, and increased risk of death continue to similarly increase (Jia & Lubetkin, 2005).

Physical inactivity and poor health are highly associated with obesity as well as with an increased risk of the development of chronic disorders and mortality (Nocon et al., 2007). The American Dietetic Association notes that up to 50% of chronic disease mortality is related to modifiable lifestyle factors such as nutrition and physical activity that contribute to obesity (Kolotkin, Meter, & Williams, 2001). In patients with T2DM, 85% are estimated to be

overweight or obese, and a weight loss of 5-10% of total body weight has shown to significantly improve blood pressure, glycemic control, and lipid levels (World Health Organization, 2018; Wing et al., 2011). Similarly, weight gain is associated with an increased risk of developing hypertension and a 10% total body weight loss produced an average of a 4.3/3.8 mmHg decrease in blood pressure (Delaney, 2011). Studies show that behavioral interventions aimed to increase physical activity and healthy eating, while not focusing on specific weight loss, also produced significant improvements in hemoglobin A1c in adults with T2DM (Avery, Flynn, Van Wersch, Sniehotta, & Trenell, 2012). Individuals that meet the basic United States physical activity guideline of 150 minutes of moderate-intensity aerobic physical activity each week had a 14% lower risk of coronary heart disease (Sattelmair et al., 2011). Despite decades of warning about potentially negative health outcomes of living a sedentary lifestyle, more than 60% of adults in the Western world do not exercise regularly (Seefeldt, Malina, & Clark, 2002). Apart from physical activity, nutrition education focusing on increasing knowledge, teaching alternative behaviors, and incorporating personal food favorites in individualized eating patterns result in improvement of dietary habits such as a decrease in trans fats, sugary drinks, and an increase of fruits and vegetables. These healthy dietary changes lead to a reduced risk of cardiovascular disease, T2DM, and obesity (Freeland-Graves & Nitzke, 2013). With the improvement of dietary and physical activity habits, individuals not only improve the management of their existing chronic conditions, but also help prevent new disorders and mortality.

Adults attempting to maintain a healthy lifestyle are continuously challenged by social and environmental barriers. These barriers are exacerbated in underserved communities, such as those with low SES, ethnic minority populations, and those with a lack of insurance (Betancourt, Green, Carrillo, & Owusu Ananeh-Firempong, 2016). Members of these underserved

communities often have lower levels of education, work in jobs with higher rates of occupational hazards, have difficulty accessing preventative health care, have difficulty going to appointments and healthy lifestyle classes due to lack of transportation, and do not have disposable income to pay for resources such as gym memberships or equipment. Ethnic minorities face further barriers, such as language barriers and ineffective communication, fear of racism, fear of deportation, and unsafe environments (Betancourt et al., 2016).

Characteristics such as having a low SES, being ethnic minorities, not speaking English, and being under or uninsured are the primary characteristics of the majority of this proposed Midwestern site's population. The risk of obesity is further aggravated by the clinic's location in a county with a higher prevalence of obesity (32.0%) compared to both the state (31.2%) and national (29.8%) average, suggesting that the clinic's obesity prevalence is equally high (Kent County Health Department, 2017). Studies show that the removal of barriers that prevent active lifestyles, such as unaffordable facilities and fear for personal safety in facilities are of primary importance in promoting a healthy lifestyle. Identification of its determinants and the design of interventions which reduce barriers may promote regular physical activity and reduce BMI (Seefeldt et al., 2002). The purpose of this Doctor of Nursing practice (DNP) project is to collaborate with trusted existing community service organizations in order to provide culturally congruent nutrition education and physical activity classes that are accessible, affordable, and safe for underserved patients from a Midwestern safety-net clinic for the purpose of obesity reduction. Individual objectives of this project include a reduction of weight, an increase in physical activity, an improvement in dietary habits, and increased knowledge of nutrition. Systemic objectives include the development of a sustainable program for underserved populations and the increased collaboration between the healthcare clinic and community

organizations to increase the clinic's exposure to the public. Leininger's Culture Care Diversity and Universality Theory was used as the theoretical model for the development of this project while Kotter's Eight Step Change Model guided the implementation process.

Methods

This quality improvement project was designed to increase physical activity and improve dietary habits in order to reduce obesity rates in patients of an urban Midwestern safety-net clinic. The design of this project was a "pre" and "post" implementation comparison after a six-week program. Clients self-referred or were referred by their primary care provider.

Intervention

Two organizational analyses were conducted which determined a need for this quality improvement project within the organization (Appendix A). Once the need was determined, the evidence-based quality improvement project was designed from results of a systematic literature review (Appendix B). The project plan for this evidence-based culturally-congruent two-branch nutrition education and physical activity class intervention is based on Kotter's Eight Step Change Model (Appendix C) in order to achieve the three primary objectives of reduction of weight, increased physical activity, and improved dietary habits. The target population invited to attend the classes include patients of the clinic that are 20-65 years old with a diagnosis of hypertension, T2DM, or a body mass index over 30, that speak either Spanish or English, with an expressed interest of readiness to change, and were individually approved by their primary care provider. The six-week nutrition class was roughly one and a half hours long and focused on; label reading, MyPlate, understanding of how nutrition impacts the body, healthy eating on a budget, menu planning, and food safety. Each class included a food demonstration that used affordable and healthy ingredients typical of Latino cuisine to make a snack such as mango salsa.

The class also emphasized how physical activity impacts health and participants were taught

easy techniques to increase activity level throughout the day such as taking the stairs rather than

an elevator. The classes were held at the safety-net clinic and were taught by a PhD-educated

bilingual and bicultural Latina community nutrition instructor. Participants that attended four out

of the six nutrition classes received a graduation diploma and a donated free one-hour class pass

to a local recreational center from the clinic as an incentive. The physical activity classes were

held in a nearby elementary school which is recognized as a safe and accessible community

location. The classes occurred once per week for one hour and focused on Zumba, a moderate-

activity exercise demonstrated to be favored by the Latino population and typically show success

in increasing physical activity (Larsen, Pekmezi, Marquez, Benitez, & Marcus, 2013). The

Zumba classes were already existing and open to the public, therefore, a new collaboration with

the clinic increased exposure and awareness of the clinic and its services to the community. This

additional awareness of the clinic may result in an increase of future revenue through increased

patient registration, volunteers, or donations. Due to the clinic having low revenue to provide

classes, both the nutrition and physical activity classes, as well as the incentives, were free for

both the patients and clinic. Free classes were funded through grants due to new collaborations

with community outreach organizations which were established by the student implementing the

intervention.

Approach

Pre-intervention data was collected on the first day of the nutrition class to provide a

baseline for the participants, while post-intervention data was collected six weeks later, at the last

day of the nutrition class. A nutrition program satisfaction evaluation was given only at the last

nutrition class. The data collected and analyzed were reviewed with the medical staff and team members.

Measures

Measures of this intervention included the group's average weight collected by a chart review of the electronic health record (EHR) system to gather weight information. Physical activity and diet quality indicators (i.e., eating fruits and vegetables, drinking less sugary drinks) were measured with the Food and Physical Activity Questionnaire (FPAQ) and a 24-hour Food Recall form (Appendix D; Appendix E). Nutrition knowledge was measured by a single anonymous self-rated nutrition knowledge question (Appendix F). Participant's satisfaction with the nutrition class was measured with an anonymous nutrition class satisfaction evaluation (Appendix G). All forms were available in English and Spanish and the student was available to help participants with low literacy.

Analysis

Analysis of physical activity and dietary habits include only those that completed both pre and post-intervention FPAQ and 24-hour Food Recall questionnaires (n=6). Pre-intervention weight and the nutritional knowledge question was collected as a total average of all participants (n=13). Post-intervention weight was collected at the time of the nutrition class or through an EHR chart review of patients that had been weighed at the clinic within one week (n=9). The nutritional knowledge question was collected at the time of the last nutrition class (n=6). All results were analyzed regardless of how many classes the participants attended. Weight and the nutritional knowledge question were collected, unidentified, and recorded on an Excel spreadsheet for analysis. Results from the FPAQ and 24-hour Food Recall form was gathered and statistically analyzed by the nutrition instructor's organization and shared with the clinic due

to their patient identification protocol.

Ethical Considerations

Data collection began after this project was deemed a quality improvement project by the Institutional Review Board (IRB). Data collected for the project was stored on a flash drive and kept with the Project and Quality Improvement Manager (PQIM), in a safe and locked office. There was no data shared or saved in cloud storage, or on any school device. Only the project team had access to the deidentified data and use it for completion of this project.

Results

Of the 13 participants that registered for the classes, seven participants completed four out of the six nutrition classes. There were no participants that attended both the nutrition class and the physical activity class. All participants were Hispanic/Latino and had a primary language of Spanish and were between the age of 30-59 years old. Results are found in Appendix H.

Physical Activity

Based on the completed FPAQ and 24-hour Food Recall, 50% showed improvement in one or more physical activity behaviors. Fifty percent of participants reported making small changes to be physically active more often and 33% reported exercising more days per week.

Nutrition

After participating in the program, 100% of participants showed improvement in one or more diet quality indicators. Notably, 83% of participants reported an increase in daily fruit consumption, 50% of participants reported an increase in daily vegetables intake compared to their pre-intervention responses, and 100% of participants met recommendations for dark green vegetable consumption which was a 50% increase. Mean sodium intake was noted to decrease by 64 milligrams after the intervention, while mean fiber intake increased by 3.8 grams from pretest

to posttest. Also, 17% reduced their sugary-sweetened beverage intake after completing the program. The average nutrition knowledge question results increased by 1.5 points thus revealing an increase in nutrition knowledge.

Weight

Average weight from the initial registered participants (n=13) pre-intervention was 208.7 pounds. Available post-intervention data showed an average weight increase of 2.9 pounds (n=9).

Satisfaction

The post-intervention satisfaction evaluations (n=6) were very positive. All participants responded with either 'Somewhat' or 'Yes' to their satisfaction with the class. Notably, 100% of participants responded with 'Yes' to questions of whether this class gave them tips to improve their health, to using this class to improve their health, to wanting to attend another nutrition class in the future, and to recommending this class to somebody else.

Systemic Objectives

Overall, this project led to the development of a sustainable program to improve the health of underserved populations. This project also increased collaboration between the healthcare clinic and community resources that had not previously existed. Collaborations between organizations increased exposure and awareness of the clinic and its services to the public.

Discussion

Overall, the practice change was considered successful. Thirteen participants were registered for the class, seven "graduated" from the nutrition program, and six patients were lost to follow up. The primary reason that participants stopped attending the program was because of

the winter weather and their fear of driving in the snow. Nonetheless, the clinic regarded the attendance of this intervention as very positive given the social determinant of health barriers. Participants noted the winter weather as a contribution for their absence from exercise classes as well as the difficulty of attending two different classes within the same week. Although none of the participants attended the exercise class, results show that 50% of patients increased their physical activity within the intervention period which shows that education of the importance of exercise is effective in increasing physical activity. Since the exercise class is held all-year and is open to the public, there were several instances where class participants heard the mention of the clinic by the student who was able to educate them on the clinic's services and purpose. Through the clinic's new collaboration, one of the clinic's goals of increased exposure to the community was achieved.

Although a reduction of weight was not achieved, it is necessary to recognize the short-term nature of this intervention and view weight loss as a complex long-term process. Variables that may have contributed to this weight gain include hosting the intervention during the time of year with many food-based holidays such as Thanksgiving and Christmas.

Cultural Aspects

The use of an intervention with the emphasis on cultural congruence improved its effectiveness. Many participants mentioned that they had never attended a class with a bicultural and bilingual instructor and were grateful for this cultural congruence. The incorporation of family as a support system was effective as shown through one of the participants bringing in their daughter to three nutrition classes rather than missing the class.

<p style="text-align:center">Limitations</p>

Limitations for this project included its small sample size and a short implementation

timeframe which prevented collection of long-term measurable changes, such as long-term weight changes. Satisfaction was measured through surveys which were delivered by the instructor which may have led to bias in the participant's responses. Another major limitation of this study was the winter weather. The project was implemented in the winter which resulted in a correlation between a greater than average number of winter storms and low attendance. Similarly, the exercise class was held at a local school, thus when the school was cancelled due to severe weather, the exercise class was also cancelled, which occurred once during the six-week period. Along with this, many participants stated that establishing major dietary changes due to holiday gatherings in November and December was especially difficult for them.

Conclusion

Obesity in the United States has grown to an epidemic level and continues to increase every year. This disease disproportionately impacts underserved Latino and Hispanic populations often due to lack of healthy lifestyle education, inaccessibility, unaffordability, cultural and language barriers. With the introduction of a culturally congruent quality improvement project located within the community that focuses on nutrition education and physical activity classes, patients showed increased healthy dietary habits, physical activity, and nutrition knowledge.

Implications for Practice

The implementation of this evidence-based culturally congruent quality improvement project increased accessibility to free health improvement education and classes for underserved populations which did not previously have access. An effective aspect of this project was the involvement of a variety of existing community service organizations to collaborate in providing a program that was culturally tailored to its population thus showing their improvement in diet, nutrition knowledge, physical activity, and high satisfaction results. Due to the success of the

project and its low clinic cost, the clinic has deemed it necessary to make this program and its

relationship with the community organizations sustainable. This program is expected to be

offered to its patients three times per year and will be managed by the health educator. Future

projects should take winter weather into consideration when determining the program schedule.

Future studies should also consider other objective measurements such as blood pressure, weight

circumference, and hemoglobin A1c to determine improvement. Ultimately, this project can

serve as a template for other clinics across the country with similar populations in order to

combat obesity and improve healthy lifestyles throughout a community.

Appendices

Appendix A

SWOT Analysis of the Safety-Net Clinic

STRENGTHS	WEAKNESSES
- Increased accessibility to underserved patients - Low-cost appointments - Quality care and positive culture based on Christ-centered care - Bilingual interpreters and some staff - Some specialty providers available - Counseling and spiritual care provided	- Income based on donations – low disposable money - Risk of patients not having consistent provider - Limit of subspecialties - Lack of chronic disease interventions - Lack of chronic disease prevention interventions
OPPORTUNITIES	THREATS/CHALLENGES
- Collaboration with community organizations and resources could increase promotion of clinic and decrease cost of interventions - Close-knit community that provides social support and safety	- Highly variable revenue based on donations - Patient population includes those with a low socioeconomic status, non-English-speakers, and under or uninsured

Appendix B

Table of Literature Evidence

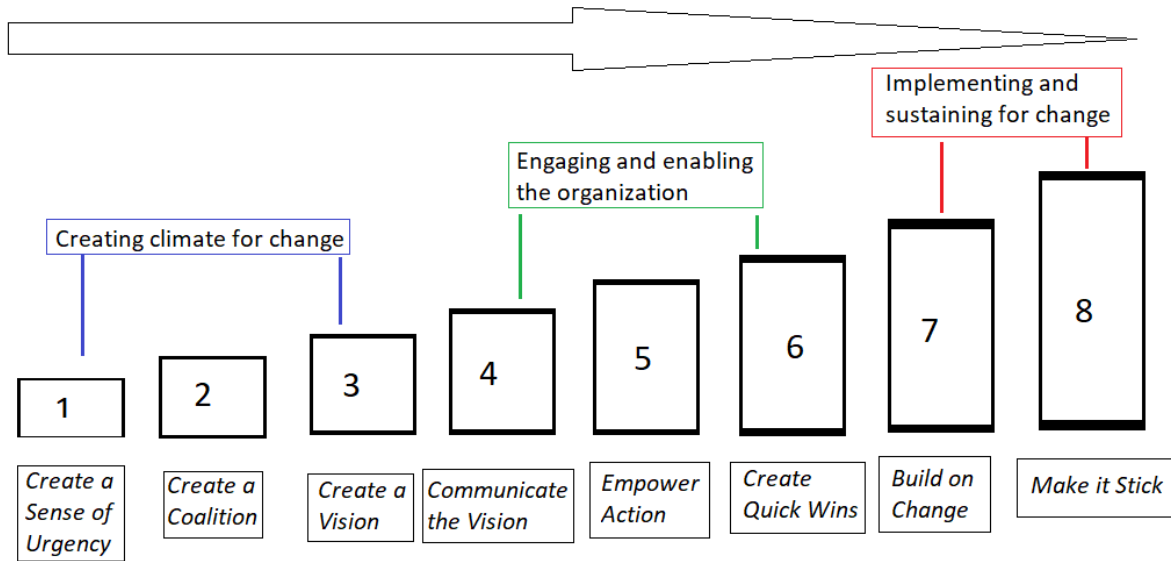| Author/ Year	Type of Study	Number of studies/ participants	Intervention Components	Population	Measures	Results	Conclusion
Dressel et al., 2018	RCT	n=26	12 weeks long. 10 weekly group bike rides with bilingual instructor	Latino and African American adults with BMI over 25	Baseline, after 12 weeks, and after 20 wks. Biking attitude survey, International Physical Activity Questionnaire, 6-minute Step Test, weight, blood pressure, waist circumference	Decreased perceived barriers to biking, increased self-recorded bicycling. No change in biometrics.	No change in BMI or physical health
Berry et al., 2011	RCT	n=56	9 months long. Moms could bring children. 12-week program, weekly (for 1st 3 months) monthly (for 3 months), on own (3 months) 60 min long with exercise intervention, nutrition education, coping skills class. Bilingual staff. Given pedometers and healthy snacks.	Mexican immigrant mothers (with BMI over/equal to 25) and their children (age 2-4).	BMI, waist circumference, skinfolds, Health Promoting Lifestyle Profile II, The Eating Self-Efficacy Scale, Exercise Self-Efficacy Scale, fasting glucose, insulin, lipid panel measured baseline and 9 months.	Decreased BMI, tricep and subscapular skinfolds, waist circumference, total cholesterol, triglycerides, HDL, LDL, fasting blood glucose, fasting insulin, hemoglobin A1c. Increased health responsibility, nutrition, exercise knowledge, stress management, eating and exercise self-efficacy in moms.	Intervention was effective in increasing exercise and nutrition knowledge, self-reported dietary improvement preintervention goal attainment, and weight management improvement.
Hovell et al., 2008	RCT	n=151	Control: 18 sessions of 90 minutes over 6 months. Low-literacy education on home safety and disease prevention topics unrelated to exercise, diet, or CVD done by bilingual staff. Intervention Aerobic exercise intervention of three 90-min group sessions weekly for 6 months. After exercise, 30 min of diet/activity education given: nutrition, exercise, safety. Bilingual staff	Low income, mostly Spanish speaking, Latinas with sedentary lifestyles (exercise less than 3x/week for less than 30 min)	Height, weight, blood pressure, health history, physical activity assessment, fasting glucose. Exclusion: BMI over 40, BP over 160mmHG systolic, diastolic over 94mmHg, T2DM, fasting glucose over 140mg/dl, LDL >260 mg/dL, pregnant. Measured at Baseline, 6 mths, 12 mths.	Increased vigorous activity, walking Improved HDL, no change in BMI glucose, triglycerides, LDL or blood pressure	Intervention showed improved physical activity and HDL cholesterol
Cleland et al., 2013	Systematic Review and Meta-Analysis	19 Controlled trials	Phone counseling of physical activity, pedometers given -Education sessions with healthy snacks and aerobic activity. -Books on physical activity-Nutrition education -Aerobic exercise groups -Computer messages and phone calls -Phone texts of behavioral and cognitive strategies for lifestyle change -Walking in neighborhood	Socio-economically disadvantaged women older than 19 years old	Main: Physical Activity change	Group interventions were more effective than individual. Face-to-face interventions were more effective than telephone/mass media. Community and organization interventions were more effective than home interventions. Physical activity promotion is effective.	Physical activity promotion is effective. The biggest factor to decreasing weight was being in a group-based intervention

Appendix C

Kotter's 8-Step Change Model

Figure 2. Adapted from Kotter, J. P. (2012). *Leading Change: With a New Preface by the Author.*

Harvard Business Review Press: Boston, Mass.

Appendix D

Food and Physical Activity Questionnaire

☐ ENTRY   ☐ EXIT

NAME

DATE / /

EFNEP
Expanded Food and Nutrition Education Program

Expanded Food and Nutrition Education Program
Food & Physical Activity Questionnaire

Please mark the response that **best** describes how you **usually** do things.

1. How many times a day do you eat fruit?

Examples of fruits are apples, bananas, oranges, grapes, raisins, melon and berries. Include fresh, frozen, dried, or canned fruit. *Do not include juice.*

☐ I rarely eat fruit
☐ Less than 1 time a day (a couple times a week)
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 or more times a day

2. How many times a day do you eat vegetables?

Examples of vegetables are green salad, corn, green beans, carrots, potatoes, greens, and squash. Include fresh, canned and frozen vegetables. *Do not count french fries, potato chips or rice.*

☐ I rarely eat vegetables
☐ Less than 1 time a day (a couple times a week)
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 or more times a day

3. Over the last week, how many days did you eat red and orange vegetables?

Examples of red or orange vegetables are tomatoes, red peppers, carrots, sweet potatoes, winter squash, and pumpkin.

☐ I did not eat red and orange vegetables
☐ 1 day a week
☐ 2 days a week
☐ 3 days a week
☐ 4 days a week
☐ 5 days a week
☐ 6 or 7 days a week

4. Over the last week, how many days did you eat dark green vegetables?

Examples of dark green vegetables are broccoli, spinach, dark green lettuce, turnip greens, or mustard greens.

☐ I did not eat dark green vegetables
☐ 1 day a week
☐ 2 days a week
☐ 3 days a week
☐ 4 days a week
☐ 5 days a week
☐ 6 or 7 days a week

5. How often do you drink regular sodas (not diet)?

☐ Never
☐ 1–3 times a week
☐ 4–6 times a week
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 or more times a day

6. How often do you drink fruit punch, fruit drinks, sweet tea or sports drinks?

☐ Never
☐ 1–3 times a week
☐ 4–6 times a week
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 or more times a day

There is more on the next page ➡
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7. In the past week, **how many days** did you exercise for at least 30 minutes?

This includes things like jogging, playing soccer, and doing fitness or dance classes, or exercise videos. <u>This 30 minutes could be all at once or 10 minutes or more at a time.</u> *Do not count housework, taking care of your kids, or walking from place to place.*

☐ 0 days   ☐ 4 days
☐ 1 day   ☐ 5 days
☐ 2 days   ☐ 6 days
☐ 3 days   ☐ 7 days

8. In the past week, **how many days** did you do workouts to build and strengthen your muscles?

This includes things like lifting weights and doing push-ups, sit-ups or planks.

☐ 0 days   ☐ 4 days
☐ 1 day   ☐ 5 days
☐ 2 days   ☐ 6 days
☐ 3 days   ☐ 7 days

9. How often do you make small changes on purpose to be more active?

This includes things like walking instead of driving, getting off the bus one stop early, doing a few minutes of exercise, or moving around instead of sitting while watching TV.

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

10. How often do you wash your hands with soap and running water before preparing food?

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

11. After cutting raw meat or seafood, how often do you wash all items and surfaces that came in contact with these foods?

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

12. How often do you thaw frozen food on the counter or in the sink at room temperature?

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

13. How often do you use a meat thermometer to see if meat is cooked to a safe temperature?

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

14. In the past month, how often did you eat less than you wanted so there was more food for your family?

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

15. **In the past month, how often did you not have money or another way to get enough food for your family (such as SNAP, WIC, or a food pantry)?**

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

16. **How many _days a week_ do you cook dinner (your main meal) at home?**

☐ I rarely cook dinner at home
☐ 1 day a week
☐ 2 days a week
☐ 3 days a week
☐ 4 days a week
☐ 5 days a week
☐ 6 or 7 days a week

17. **How often do you compare food prices to save money?**

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

18. **How often do you plan your meals before you shop for groceries?**

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

19. **How often do you look in the refrigerator or cupboard to see what you need before you go shopping?**

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

20. **How often do you make a list before going shopping?**

☐ Never
☐ Rarely (about 20% of the time)
☐ Sometimes (about 40% of the time)
☐ Often (about 60% of the time)
☐ Usually (about 80% of the time)
☐ Always

☐ ENTRY   ☐ EXIT

NOMBRE

FECHA   /   /

EFNEP
Expanded Food and Nutrition Education Program

Programa Ampliado de Educación sobre Nutrición y Alimentos (EFNEP)
Cuestionario sobre alimentos y actividad física

Marque la respuesta que **mejor** describa lo que usted hace **generalmente**.

1. ¿Cuántas **veces al día** consume frutas?

Ejemplos de <u>frutas</u>: manzanas, bananas, naranjas, uvas, pasas de uva, melón y bayas. Incluye frutas frescas, congeladas, secas o enlatadas. *No incluye jugos.*

☐ Casi nunca consumo frutas
☐ Menos de 1 vez al día (un par de veces a la semana)
☐ 1 vez al día
☐ 2 veces al día
☐ 3 veces al día
☐ 4 o más veces al día

2. ¿Cuántas **veces al día** consume vegetales?

Ejemplos de <u>vegetales</u>: ensaladas de hojas verdes, maíz, ejotes, zanahorias, papas, vegetales de hojas verdes y calabaza. Incluye vegetales frescos, enlatados y congelados. *No incluye papas fritas, papitas fritas (chips) ni arroz.*

☐ Casi nunca consumo vegetales
☐ Menos de 1 vez al día (un par de veces a la semana)
☐ 1 vez al día
☐ 2 veces al día
☐ 3 veces al día
☐ 4 o más veces al día

3. Durante la última semana, ¿**cuántos días** consumió vegetales rojos y anaranjados?

Ejemplos de <u>vegetales rojos o anaranjados</u>: tomates, pimientos rojos, zanahorias, batatas, calabacín de invierno y calabaza.

☐ No consumí vegetales rojos ni anaranjados
☐ 1 día a la semana
☐ 2 días a la semana
☐ 3 días a la semana
☐ 4 días a la semana
☐ 5 días a la semana
☐ 6 o 7 días a la semana

4. Durante la última semana, ¿**cuántos días** consumió vegetales de color verde oscuro?

Ejemplos de <u>vegetales de color verde oscuro</u>: brócoli, espinaca, lechuga de color verde oscuro, hojas de nabo u hojas de mostaza.

☐ No consumí vegetales de color verde oscuro
☐ 1 día a la semana
☐ 2 días a la semana
☐ 3 días a la semana
☐ 4 días a la semana
☐ 5 días a la semana
☐ 6 o 7 días a la semana

EFNEP-20Q-Jul17-PP1

5. ¿Con qué frecuencia consume refrescos/ bebidas gaseosas regulares (no dietéticos)?

☐ Nunca

☐ 1-3 veces a la semana

☐ 4-6 veces a la semana

☐ 1 vez al día

☐ 2 veces al día

☐ 3 veces al día

☐ 4 o más veces al día

6. ¿Con qué frecuencia bebe ponche de frutas, bebidas de frutas, té dulce o bebidas deportivas?

☐ Nunca

☐ 1-3 veces a la semana

☐ 4-6 veces a la semana

☐ 1 vez al día

☐ 2 veces al día

☐ 3 veces al día

☐ 4 o más veces al día

7. Durante la última semana, ¿cuántos días hizo al menos 30 minutos de ejercicio?

Incluye trotar, jugar al fútbol, hacer entrenamiento físico, tomar clases de baile o hacer ejercicios de video. Estos 30 minutos pueden ser seguidos o en intervalos de 10 o más minutos. No incluya los quehaceres de la casa, cuidar a los niños ni caminar de un lugar a otro.

☐ 0 días

☐ 1 día

☐ 2 días

☐ 3 días

☐ 4 días

☐ 5 días

☐ 6 días

☐ 7 días

8. Durante la última semana, ¿cuántos días hizo ejercicios para desarrollar y fortalecer los músculos?

Incluye ejercicios como levantamiento de pesas, lagartijas, abdominales o planchas abdominales.

☐ 0 días

☐ 1 día

☐ 2 días

☐ 3 días

☐ 4 días

☐ 5 días

☐ 6 días

☐ 7 días

9. ¿Con qué frecuencia hace pequeños cambios intencionales para estar más activo?

Incluye caminar en lugar de conducir el vehículo, bajarse del autobús una parada antes, hacer algunos minutos de ejercicio o estar en movimiento en lugar de estar sentado mientras mira la TV.

☐ Nunca

☐ Casi nunca (aproximadamente el 20 % del tiempo)

☐ Algunas veces (aproximadamente el 40 % del tiempo)

☐ A menudo (aproximadamente el 60 % del tiempo)

☐ Habitualmente (aproximadamente el 80 % del tiempo)

☐ Siempre

10. **¿Con qué frecuencia se lava las manos con agua corriente y jabón antes de preparar los alimentos?**

    ☐ Nunca

    ☐ Casi nunca (aproximadamente el 20 % del tiempo)

    ☐ Algunas veces (aproximadamente el 40 % del tiempo)

    ☐ A menudo (aproximadamente el 60 % del tiempo)

    ☐ Habitualmente (aproximadamente el 80 % del tiempo)

    ☐ Siempre

11. **Después de cortar carnes o mariscos crudos, ¿con qué frecuencia lava todos los elementos y las superficies que estuvieron en contacto con estos alimentos?**

    ☐ Nunca

    ☐ Casi nunca (aproximadamente el 20 % del tiempo)

    ☐ Algunas veces (aproximadamente el 40 % del tiempo)

    ☐ A menudo (aproximadamente el 60 % del tiempo)

    ☐ Habitualmente (aproximadamente el 80 % del tiempo)

    ☐ Siempre

12. **¿Con qué frecuencia descongela los alimentos congelados en la encimera de la cocina o en el fregadero a temperatura ambiente?**

    ☐ Nunca

    ☐ Casi nunca (aproximadamente el 20 % del tiempo)

    ☐ Algunas veces (aproximadamente el 40 % del tiempo)

    ☐ A menudo (aproximadamente el 60 % del tiempo)

    ☐ Habitualmente (aproximadamente el 80 % del tiempo)

    ☐ Siempre

13. **¿Con qué frecuencia usa un termómetro para carnes para saber si las carnes están cocidas a una temperatura segura?**

    ☐ Nunca

    ☐ Casi nunca (aproximadamente el 20 % del tiempo)

    ☐ Algunas veces (aproximadamente el 40 % del tiempo)

    ☐ A menudo (aproximadamente el 60 % del tiempo)

    ☐ Habitualmente (aproximadamente el 80 % del tiempo)

    ☐ Siempre

14. **Durante el último mes, ¿con qué frecuencia comió menos de lo que deseaba para dejarle más comida a su familia?**

    ☐ Nunca

    ☐ Casi nunca (aproximadamente el 20 % del tiempo)

    ☐ Algunas veces (aproximadamente el 40 % del tiempo)

    ☐ A menudo (aproximadamente el 60 % del tiempo)

    ☐ Habitualmente (aproximadamente el 80 % del tiempo)

    ☐ Siempre

15. **Durante el último mes, ¿con qué frecuencia no tuvo dinero u otros medios para adquirir suficientes alimentos para su familia (como SNAP, WIC o una alacena/despensa comunitaria)?**

    ☐ Nunca

    ☐ Casi nunca (aproximadamente el 20 % del tiempo)

    ☐ Algunas veces (aproximadamente el 40 % del tiempo)

    ☐ A menudo (aproximadamente el 60 % del tiempo)

    ☐ Habitualmente (aproximadamente el 80 % del tiempo)

    ☐ Siempre

16. ¿Cuántos **días a la semana** cocina la cena (su comida principal) en su casa?

☐ Casi nunca cocino la cena en casa
☐ 1 día a la semana
☐ 2 días a la semana
☐ 3 días a la semana
☐ 4 días a la semana
☐ 5 días a la semana
☐ 6 o 7 días a la semana

17. ¿Con qué frecuencia compara los precios de los alimentos para ahorrar dinero?

☐ Nunca
☐ Casi nunca (aproximadamente el 20 % del tiempo)
☐ Algunas veces (aproximadamente el 40 % del tiempo)
☐ A menudo (aproximadamente el 60 % del tiempo)
☐ Habitualmente (aproximadamente el 80 % del tiempo)
☐ Siempre

18. ¿Con qué frecuencia planifica las comidas antes de comprar alimentos?

☐ Nunca
☐ Casi nunca (aproximadamente el 20 % del tiempo)
☐ Algunas veces (aproximadamente el 40 % del tiempo)
☐ A menudo (aproximadamente el 60 % del tiempo)
☐ Habitualmente (aproximadamente el 80 % del tiempo)
☐ Siempre

19. ¿Con qué frecuencia revisa su refrigerador o alacena para ver qué necesita antes de hacer las compras?

☐ Nunca
☐ Casi nunca (aproximadamente el 20 % del tiempo)
☐ Algunas veces (aproximadamente el 40 % del tiempo)
☐ A menudo (aproximadamente el 60 % del tiempo)
☐ Habitualmente (aproximadamente el 80 % del tiempo)
☐ Siempre

20. ¿Con qué frecuencia hace una lista antes de hacer las compras?

☐ Nunca
☐ Casi nunca (aproximadamente el 20 % del tiempo)
☐ Algunas veces (aproximadamente el 40 % del tiempo)
☐ A menudo (aproximadamente el 60 % del tiempo)
☐ Habitualmente (aproximadamente el 80 % del tiempo)
☐ Siempre

USDA United States Department of Agriculture   National Institute of Food and Agriculture

Appendix E

24-hour Food Recall Questionnaire

EFNEP
Expanded Food and Nutrition Education Program

Expanded Food and Nutrition Education Program
Food Recall

NAME

☐ ENTRY   ☐ EXIT
DATE   /   /

How much money did you spend on food last month?
$_____

Are you pregnant?   ☐ Yes   ☐ No
Are you breastfeeding? ☐ Yes   ☐ No

How much time do you spend on moderate physical activity on most days?
☐ Less than 30 minutes
☐ 30 to 60 minutes
☐ More than 60 minutes

Think about all of the foods and beverages you consumed in the last 24 hours, including water. Please list them all in the table below.

	List one food/drink per line.	How Much?
Breakfast		
Snack		
Lunch		
Snack		
Dinner		
Snack		

EFNEP
Expanded Food and Nutrition Education Program

☐ ENTRY   ☐ EXIT

NAME

DATE   /   /

Expanded Food and Nutrition Education Program
Food Recall

Please use the space below to enter any foods that did not fit into the table on the front.

	List one food/drink per line.	How Much?
Breakfast		
Snack		
Lunch		
Snack		
Dinner		
Snack		

EFNEP
Expanded Food and Nutrition Education Program

☐ ENTRY   ☐ EXIT

NAME / NOMBRE

DATE / FECHA
/   /

Expanded Food and Nutrition Education Program
Food Recall

¿Cuánto dinero gastó en alimentos el mes pasado?
$_____

¿Está usted embarazada? ☐ Sí ☐ No
¿Está usted amamantando? ☐ Sí ☐ No

¿Cuánto tiempo dedica a hacer actividad física moderada la mayoría de los días?
☐ *Menos de 30 minutos*
☐ *30 a 60 minutos*
☐ *Más de 60 minutos*

Lista de alimentos y descripción Escriba un alimento en cada línea	¿Cuánto?
Breakfast/ *Desayuno*	
Snack/ *Merienda*	
Lunch/ *Almuerzo*	
Snack/ *Merienda*	
Dinner/ *Cena*	
Snack/ *Merienda*	

EFNEP
Expanded Food and Nutrition Education Program

Expanded Food and Nutrition Education Program
Food Recall

NAME / NOMBRE

☐ ENTRY ☐ EXIT

DATE / FECHA
/ /

Por favor escriba en el espacio debajo los alimentos que no cupieron en la primera página.

	Lista de alimentos y descripción Escriba un alimento en cada línea	¿Cuánto?
Breakfast/ Desayuno		
Snack/ Merienda		
Lunch/ Almuerzo		
Snack/ Merienda		
Dinner/ Cena		
Snack/ Merienda		

Appendix F

Nutrition Knowledge Question

English Version:

From 1-5, how much do you know about healthy eating?

(Circle number below)

1	2	3	4	5
Low		Medium		High

Spanish Version:

De 1-5, ¿Cuánto sabe sobre comer saludable?

(Circule un número)

1	2	3	4	5
Bajo		Mediano		Alto

Appendix G

Nutrition Program Satisfaction Survey

Nutrition Class

I am satisfied with the information I learned.

1	2	3	4	5
No		Somewhat		Yes

This class gave me tips to improve my health.

1	2	3	4	5
No		Somewhat		Yes

I will use this class to improve my health.

1	2	3	4	5
No		Somewhat		Yes

Would you like to attend another nutrition class in the future? (Circle one)

Yes   **No**   **Not Sure**

Would you recommend this class to someone else? (Circle one)

Yes   **No**   **Not Sure**

What did you like about the class?

_____

_____

Did anything prevent you from attending the class?

_____

_____

Clase de Nutrición

Estoy satisfecho con la información que aprendí.

1	2	3	4	5
No		Más o menos		Si

Esta clase me dio consejos para mejorar mi salud.

1	2	3	4	5
No		Más o menos		Si

Voy a usar esta clase para mejorar mi salud.

1	2	3	4	5
No		Más o menos		Si

¿Le gustaría atender otra clase de nutrición en el futuro? (Circule uno)

Si   **No**   **No se**

¿Recomendaría esta clase a otra persona? (Circule uno)

Si   **No**   **No se**

¿Que le gustó de la clase?

_____

_____

¿Alguna cosa le impidió asistir a la clase?

_____

_____

Appendix H

Results

Evaluation Summary

Below is a summary of **Comidas Saludables, Familias Saludables** that took place at ▬▬▬▬▬▬▬▬ during FY19. In total, 12 adults participated; of those, 6 completed the program with pre/post evaluations.

Demographics

Age and Sex	30-39	40-49	50-59
Male	0	0	2
Female	1	1	2
Total	1	1	4

Race/Ethnicity	Hispanic/Latino	Not Hispanic/Latino
Male	2	0
Female	4	0
Total	6	0

Diet Quality

After participating in the program, 100% (6 of 6) of participants showed improvement in one or more diet quality indicators (i.e., eating fruits, vegetables, red and orange vegetables, dark green vegetables, drinking less regular soda (not diet), drinking less fruit punch, fruit drinks, sweet tea, or sports drinks, and cooking dinner at home).

- 83% of graduates reported eating **fruit** more often each day
- 50% of graduated reported eating **vegetables** more often each day
- 100% of participants meet recommendations for **dark green vegetable** consumption after completing the program (50% increase).
- 17% reduced their **sugary-sweetened beverage** intake after completing the program
- Mean **fiber intake** increased from 17.9g pretest to 12.4g posttest
- Mean **sodium consumption** decreased from 1795mg to 1731mg pretest to posttest
- **Health Eating Index** (HEI) scores improved, on average, from 51.4 (out of a possible 100) to 55.7 (out of a possible 100) pretest to posttest.

Physical Activity

After participating in the program, 50% (3 of 6) of participants showed improvement in one or more physical activity behaviors (i.e., exercising for at least 30 minutes, doing workouts to build and strengthen muscles, or making small changes to be more active).

- 33% reported **exercising** more days per week (for 30 minutes or more)
- 50% reported **making small changes** to be physically active more often

Table 1

Average Group Weight Pre and Post-Intervention.

|	**Pre-Intervention (n=13)**	**Post-Intervention (n=9)**
Average Weight	208.7 lbs	211.6 lbs

Table 2

Average Self-Score of Nutrition Knowledge Question.

	Pre-Intervention Self-Score (n=13)	**Post-Intervention Self-Score (n=6)**
Average Score (Scale of 1-5)	2.3	3.8

Nutrition Class Evaluation 2018

n=7

1. I am satisfied with what I learned
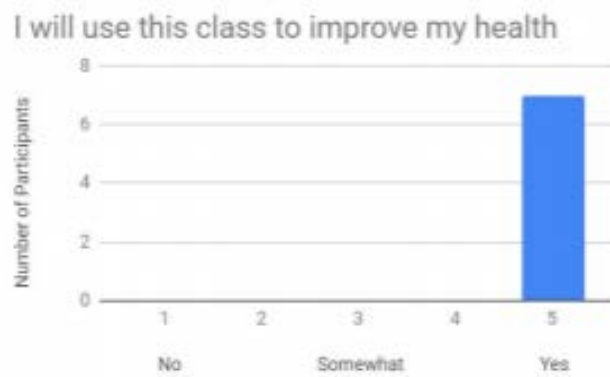
I am satisfied with what I learned

2. This class gave me tips to improve my health
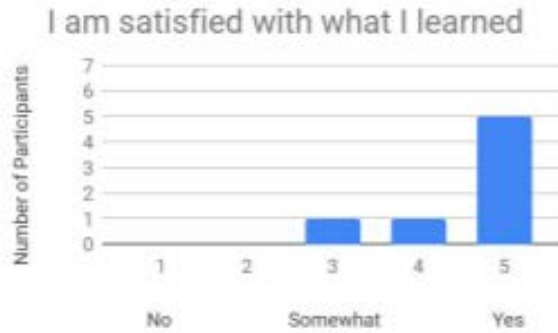
This class gave me tips to improve my health

3. I will use this class to improve my health
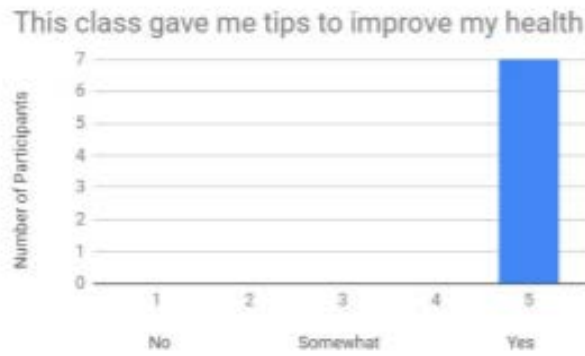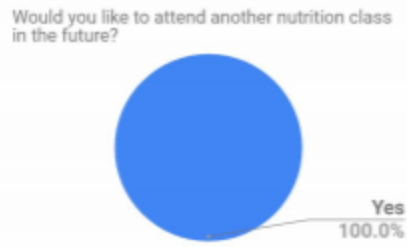
I will use this class to improve my health

4. Would you like to attend another nutrition class in the future?

Yes   No   I don't know

Would you like to attend another nutrition class in the future?

Yes
100.0%

5. Would you recommend this class to somebody else?

Yes   No   I don't know

Would you recommend this class to somebody else?

Yes
100.0%

6. What did you like about the class?

1. Everything they explained.
2. I thought everything was very interesting.
3. Everything.
4. I liked everything, very good information.
5. How to read labels and know how much sugar is in each beverage. Also the food demonstrations that the teacher did for us.
6. Everything. How to check labels. How many vegetables to eat.
7. Everything

7. Did anything prevent you from attending the class?

1. Snow and ice.
2. --
3. Weather.
4. --
5. Weather.
6. Driving in the snow.
7. Nothing

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Reflection on DNP Essentials

Essential I: Scientific Underpinnings for Practice

The DNP student should be proficient with the integration of nursing science to determine actions and strategies to enhance health and its delivery in order to evaluate outcomes and develop new practices based on nursing theories and multidisciplinary sciences. This essential was achieved through the careful analysis during the organizational assessment and the literature review which were conducted to determine best multidisciplinary practice as a method to improve health. Leininger's nursing theory was used as the base of this project which guided healthcare delivery and practice.

Essential II: Organizational and Systems Leadership

This essential focuses on the organizational and systems leadership needed to develop and evaluate effective and cost-effective healthcare delivery approaches to the improvement of quality initiatives while using advance communication skills and sensitivity to cultures and populations. This was achieved with this project though the interdisciplinary work with organizational leaders to determine facilitators and barriers to make this project a sustainable and cost-effective success for patients while encompassing sensitivity of the clinic's and population's culture. Communication with various organizational leaders was achieved through emails, meetings, and phone conversations in order to ensure open collaboration for budgeting, planning, and implementation of this multidisciplinary quality improvement project.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

A DNP graduate must be able to translate research into evidence-based practice for the goal of improving healthcare. This was accomplished by appraising evidence-based practices through a systematic literature review based on reduction of obesity in underserved Latino and

Hispanic populations. This project also highlighted the student's ability to design, implement, and evaluate an evidence-based nutrition and exercise program for patients of a safety-net clinic as well as to effectively evaluate outcomes and disseminate finding to team members in order to improve healthcare strategies.

Essential IV: Information Systems Technology

The use, evaluation, and understanding of information systems and technology is another essential that must be achieved by a DNP graduate. For this project, the student used the clinic's electronic health record system to determine eligibility and to collect data. Excel was used for the creation of tables and graphs and its analysis pertaining to the results of the project. The student also learned about information technology though webinars dedicated to nursing informatics and its growing impact on healthcare.

Essential V: Advocacy for Health Care Policy

This essential focuses on how healthcare policies influence the ability to address health care needs throughout various populations. A DNP student must demonstrate leadership in the development and implementation of healthcare policies, must advocate for the nursing profession, and must advocate for its patient populations that suffer from inequalities. This essential was achieved by the DNP student advocating for its patients that do not have insurance or access to necessary nutrition and physical activity education by bringing classes to the clinic's patients through collaborations with statewide organizations. Along with this, the student attended a nurse practitioner advocacy event at the state capital where she met with a district representative and advocated for the nursing profession.

Essential VI: Interprofessional Collaboration

A DNP graduate must show leadership within interprofessional teams while focusing on

effective communication and collaborative skills for the development of practice changes. This essential was accomplished by the student leading biweekly meetings of seven interprofessional team members for the goal of the implementation of a practice change. Also, the student met with various community outreach program leaders, nutrition instructors, and fitness instructors to determine the programs that would be the best fit for the clinic's population. This interprofessional collaboration was necessary in the development of the student's comprehensive healthy lifestyle program which was made possible by various disciplines' advice.

Essential VII: Clinical Prevention and Population Health

The analysis of epidemiological, psychosocial, biostatistical, and environmental scientific data, its synthesis of implementations to improve health promotion, disease prevention, accessibility, and the identification of gaps in healthcare populations, and its effective evaluation on care delivery models in the community to improve the nation's health while maintaining cultural sensitivity is a critical essential for a DNP graduate to master. The analysis of the population environment, gaps in population care, and the need for a health promotion/disease prevention program were identified by an organizational assessment which led to the creation of the DNP project. This project maintained cultural sensitivity through the guidance of Leininger's Cultural Care Diversity and Universality Theory in order to produce an effective intervention.

Essential VIII: Advanced Nursing Practice

This essential encompasses competencies necessary for the foundation of an advanced practice nurse such as the conduction of a comprehensive assessment in complex situations, implementation of interventions based on nursing science, development of therapeutic relationships with patients and professionals, the understanding and application of critical thinking, and the delivery of guidance and support of other nurses and students to achieve

excellence in nursing practice. The DNP graduate showed success in this essential. The DNP project provided the implementation of a comprehensive interdisciplinary intervention for the goal of reduction of a complex disease based on nursing science provided though a systematic literature review. This project and its delivery were made possible through the student's establishment of trust and therapeutic relationships with patients and stakeholders which took place over one year. Apart from the project, the student spent several hours training nursing students on how to conduct vital signs on patients, as well as teaching nursing students and prospective nursing students about the nursing profession and advanced practice degrees.

Dissemination of Outcomes

Outcomes of this project were disseminated in various ways. First, outcomes were presented to the clinic's medical and leadership staff. Second, nutrition outcomes were presented as a part of a Diabetes Self-Management Education poster presented at the Michigan Council of Nurse Practitioners conference. Third, the project was presented to the advising committee and to the public as the student's oral defense. Fourth, the student's final project defense paper was submitted and accepted to ScholarWorks. Dissemination of this project is important in order to provide other clinics with ideas and methods to combat growing obesity rates.

Sustainability

Sustainability of a project can be difficult after the facilitator leaves. Leaving an effective and successful evidence-based practice intervention is important to keep momentum of the goal. Patient evaluations of the nutrition class showed excitement in continuing healthy lifestyles which inspired the staff to make this intervention sustainable. The student and the health educator worked to open a new line of collaboration between two community organizations dedicated to helping individuals live a healthy lifestyle which has been recognized as a

sustainable collaboration. These two connections provide free resources for patients which was a major need for the clinic. The student worked closely with the health educator to teach and train her about the workflow process of planning and establishing the next set of nutrition classes. The student also created an educational sheet for providers detailing how to order the nutrition program and physical activity classes as a referral to the health educator for registration. Once the student leaves, the health educator and the PQIM will be the main individuals maintaining the nutrition and physical activity interventions for the patients. Their tasks will include calling eligible patients to register in these classes and contact the nutritionist to set up a new class schedule. Due to its success, the goal of the clinic is to provide nutrition classes at least three times per year, which the student has worked with the health educator to establish. The physical activity class at the nearby Elementary School are open all-year except for holidays and a two-week break during December. The clinic has embedded these classes into their culture and has set up the next set of nutrition classes beginning March 2019 thus showing the efforts of sustainability were effective.