A QUALITY IMPROVEMENT PROJECT TO SCREEN FOR FOOD INSECURITY IN ADULTS WITH ANXIETY OR DEPRESSION

by

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Kelsie Evelyn Kroll

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Abstract

Background. Food insecurity is the limited availability and inconsistent accessibility of healthy foods (Coleman-Jensen et al., 2022a). Food insecurity contributes to mental health problems. Individuals with food insecurity have greater odds of screening positive for depression and anxiety (Wolfson et al., 2021). The Hunger Vital Sign™ screening tool is a 2-questions evidence-based tool used to identify food insecurity (Hager et al., 2010).

Purpose. Implement the Hunger Vital Sign™ tool at a non-profit behavior health clinic to identify food insecurity in adults who screened positive for anxiety or depression, offer resources for them to obtain nutritious food, and provide additional information on healthy foods to clients with chronic conditions.

Interventions. 1. Educate stakeholders on the Hunger Vital Sign™ tool; 2. Screen clients with symptoms of anxiety or depression for food insecurity; 3. Provide resources for nutritious foods to clients who screen positive; and 4. Provide information on healthy living to clients with chronic conditions.

Outcomes. Screening for food insecurity increased from zero to use in all clients with signs of depression or anxiety. All but two of the five objectives for this project were met. The project revealed that of the clients who screened positive for food insecurity, 71.43% also suffered from anxiety or depression.

Implications for Practice. This initiative can improve mental health outcomes by reducing food insecurity using an evidence-based screening tool and providing resources for clients to access nutritious and inexpensive food to help them live healthy lives.

Keywords: Food insecurity, depression, anxiety, mental health

A Quality Improvement Project to Screen for Food Insecurity in Adults With Anxiety or Depression

Food insecurity is the limited availability and inconsistent accessibility of healthy foods with good nutritional value and the ability to obtain these foods in a manner that is acceptable to society, that is, without foraging, theft, emergency food supplies, or other coping mechanisms (Coleman-Jensen et al., 2022a). The United States Department of Agriculture has labels that define the range of food security and insecurity. Two labels are used for food insecurity: low food security and very low food security (Coleman-Jensen et al., 2022b). Low food security is when an individual or household reports limited variety or poor-quality food but does not have reduced food intake (Coleman-Jensen et al., 2022b). At the same time, very low food insecurity is when someone reports reduced food availability, resulting in skipped meals or not eating (Coleman-Jensen et al., 2022b).

Food insecurity significantly contributes to mental health problems such as anxiety and depression. Depression consists of melancholy, irritability, body aches, difficulty concentrating, persistent sadness, and lack of pleasure or interest in previously enjoyable activities (Arenas, 2019; National Institute of Mental Health, 2022). Anxiety is a constant worry, nervousness, restlessness, impending danger, distress, and uneasiness that interferes with daily life tasks (Mayo Foundation for Medical Education and Research, 2018). Wolfson and colleagues (2021) found an increased association in individuals with depression and extremely low food security with an odds ratio of 7.49 and those with anxiety with an odds ratio of 6.19 than those who are food secure. Furthermore, Wolfson's group also found that exceptionally low food security was associated with higher perceived stress (odds ratio of 10.91) (Wolfson et al., 2021). Hence, screening for food insecurity in individuals with signs and symptoms of depression or anxiety

with a tool such as the Hunger Vital Sign™ is essential to identify food insecure persons and offer support, such as referral to public assistance programs. The Hunger Vital Sign™ screening tool is a two-question evidence-based tool used to identify food insecurity validated in adults and children (Gattu et al., 2019; Gundersen et al., 2017).

This project was conducted at a non-profit mental health clinic in South Texas to identify adult clients who screen positive for anxiety or depression for food insecurity and provide resources as needed—the motivation for the project derived from the needs of the project site community. The project explores the relationship between depression or anxiety and food insecurity. It is supported by Maslow's hierarchy of needs, which stresses the importance of meeting the basic needs of food and water before higher needs. According to Maslow's hierarchy of needs, specific biological necessities—such as air, food, hydration, shelter, clothes, warmth, sex, and sleep—are necessary for survival (Maslow, 1954). The human body can only function at its best if basic needs are met before higher needs (Maslow, 1954). Therefore, Maslow regarded physiological conditions as more significant than all other wants because, unless these needs are addressed, all other needs become subordinate (Maslow, 1954).

Problem

Social determinants of health such as poverty, housing, and challenges qualifying for government assistance, place individuals at risk for food insecurity (Healthy People 2030, 2020). According to the USDA (Martin, 2023), 32.1% of U.S. food-insecure households in 2021 resided below the federal poverty line. The poverty rate for the city where the project was conducted is 22.2% (United States Census Bureau [USCB], 2022a), significantly higher than the state's 14.2% (USCB, 2022b) and the national rate of 11.6% (USBC, 2022c).

Feeding America's 2021 reports showed that 16.2% of Webb County inhabitants are food

insecure (Feeding America, 2021). Furthermore, Afluani et al. (2020) discovered that food insecurity increased the likelihood of significant mental disease in people aged 18 to 64.

Microsystem Assessment and Problem Identification

The clinic where this Quality Improvement (QI) project was conducted is a non-profit clinic in Webb County situated on the Texas-Mexico border with a primarily Hispanic (95.5%) population (USCB, 2022b). This non-profit clinic provides high-quality, low/no-cost behavioral health, substance abuse, and healthcare services. The clinic encompasses a multidisciplinary team consisting of two founders, two nurse practitioners, nine licensed professional counselors, four social workers, one budget manager, two patient navigators, four caseworkers, four front office personnel, two medical assistants, two phlebotomists, two grant specialists, one accountant, three interns, and three therapy felines.

The clinic has several grant programs, including drug and alcohol services, assistance to those on probation, harm reduction, and counseling services for students and teachers from the local school district. The clinic also advocates for anti-bullying suicide prevention and has achieved the requirements for the Ryan White HIV/AIDs Program.

As part of the microsystem assessment, opportunities for improvement were identified.The most noteworthy improvement opportunity identified was the lack of food insecurity screening of clients. Screening for food insecurity is significant, especially when considering the many social determinants of health affecting this vulnerable population. Furthermore, the organization's founders felt it was a vital issue to focus on (see Appendix A for their letter of support). The organization's readiness for change was also assessed, and it was determined that providers and staff were keen to implement food insecurity screening with their clients.

Purpose, Outcomes, and Objectives

The purpose of this project was to implement the Hunger Vital Sign™ screening tool to identify food insecurity in clients with anxiety or depression symptoms, provide resources to obtain nutritious food for those who screened positive, and provide additional information and resources on healthy living for those clients with chronic conditions. Individuals impacted by food insecurity are more likely to develop chronic illnesses (Williams, 2023).

A short-term outcome of the project was to assist clients in meeting basic needs so that they may concentrate on their mental health treatment. The long-term outcomes were to eventually implement the Hunger Vital Sign™ screening tool for all clients at the clinic and ultimately for clients to live longer, healthier, more stable lives.

Objectives

1. Eighty percent of clients diagnosed with anxiety or depression will be screened at least once with the Hunger Vital Sign™ screening tool during their visit with the Psychiatric Mental Health Nurse Practitioner (PMHNP) during the project implementation period.
2. Ninety percent of those who screen positive on the Hunger Vital Sign™ tool for food insecurity will receive a resource pamphlet for obtaining nutritious food during the project implementation period.
3. Fifty percent of individuals who screen positive for food insecurity on the Hunger Vital Sign™ tools and have a chronic condition, such as hypertension, diabetes, or hyperlipidemia, will be referred by the PMHNP to the patient navigator for additional resources.
4. For the clients that received the resource pamphlet, 50% will use at least one of the resources provided.

5. Fifty percent of the clients referred to the patient navigator will keep their appointment with the patient navigator to receive resources.

Summary and Strength of the Evidence

In a review of the published literature, food insecurity was strongly correlated with several components of psychological distress (Staren, 2020). A systematic review and meta-analysis of depression, anxiety, and sleep disorders in adults found 57 studies that provided cross-sectional data on the association between food insecurity and depression (n = 169,433), 13 studies that provided data on anxiety and psychological distress, and food insecurity (n = 91,957), and eight studies that offered data on sleep disorders and food insecurity (n = 85,788) (Arenas et al., 2019). This meta-analysis suggests that patients who screen positive for food insecurity may require a referral for depression, anxiety, or sleep disorders (Arenas et al., 2019). Likewise, the literature suggests screening for food insecurity in individuals with signs of depression, anxiety, and sleep disorders (Arenas et al., 2019).

Becker (2019), in a case-control/observational analysis of 891 urban food bank clients, showed that the most food insecure had higher rates of eating disorders, dietary restriction, anxiety, and sadness (Becker, 2019). Additionally, food insecurity has been linked to a higher risk of developing chronic illnesses, including diabetes, obesity, heart disease, hypertension, low birth weight, depression, anxiety, other mental health disorders, and other chronic diseases (National Institute of Minority Health and Health Disparities, 2023; Flores & Amiri, 2019; Garcia, 2018).

The best practice for identifying depression and anxiety is to use objective, evidence-based, quantitative tools. The PHQ-9 is a reliable and valid measure of depression severity. According to Kroenke et al. (2001), the internal reliability of the PHQ-9 is excellent, with a

Cronbach's α of 0.89. Further studies indicate that a score ≥10 had a sensitivity of 88% and specificity of 88% for major depression (Kroenke et al., 2001). Furthermore, Kroenke and associates (2001) report that scores indicating moderate (10), moderately severe (15), or severe (20) depression warrant further evaluation.

The GAD-7 is a reliable and efficient tool for screening for general anxiety disorder and assessing its severity in clinical practice and research (Spitzer et al., 2006). Ninety-six percent (96%) of patients with a GAD score ≥10 had symptoms for a month or longer. Therefore, a level of moderate (10-14) or severe (15-21) score warrants further evaluation (Spitzer, 2006).

The Hunger Vital Sign™, a validated 2-question food insecurity screening tool based on the U.S. Household Food Security Survey (HFSS), was created in 2010 by Drs. Erin Hager and Anna Quigg with their research group Children's HealthWatch (Hager et al., 2010). The HFSS (Bickel et al., 2000) is an 18-question tool used to assess and identify food security and has been termed the "gold standard" in the field (Children's Healthwatch, 2023). Similar to the HFSS, the Hunger Vital Sign™ utilizes a Likert scale with two statements where a client can select one of three answers: (1) often true, (2) sometimes true, or (3) never true.

The Hunger Vital Sign™ identifies households as being at risk for food insecurity if they answer either or both of the following two statements "often true" or "sometimes true":

1. "Within the past 12 months, we worried whether our food would run out before we got money to buy more."
2. "Within the past 12 months, the food we bought just didn't last, and we didn't have money to get more." (Children's Healthwatch, 2023).

A sample of 30,000 parents who sought pediatric care for their young children at one of five urban hospitals served as the basis for validating the Hunger Vital Sign™ (Hager et al.,

2010). Hager and colleagues (2010) were able to show a sensitivity of 97% (meaning that 97% of families identified as food insecure using the Hunger Vital Sign™ when compared to the HFSS) and a specificity of 83% (meaning that 83% of families identified as food secure using the Hunger Vital Sign™ when compared to the HFSS (Hager et al., 2010). In scientific literature, these sensitivity and specificity rates are regarded as exceptional.

More recently, an analysis of 5,039 caregivers of children under two years in primary care sites and emergency departments found that the tool effectively identified at-risk children and connected them to resources to alleviate food insecurity (Gattu et al., 2019). This paper suggests that the Hunger Vital Sign™ effectively identifies food insecurity and connects individuals to resources.

In 2017, the two questions on the Hunger Vital Sign™ tool were validated in adults (Gundersen et al., 2017). Gunderson and colleagues (2017) examined several two-question combinations from the 2013 December Supplement of the population-based US Current Population Survey. Various two-item combinations of questions assessing food insecurity had acceptable sensitivity (>97 %) and specificity (>70%) for implementation as a clinical screening instrument (Gundersen et al., 2017). However, the authors concluded that the two items already in widespread use as a screening for food insecurity should be adopted because these questions have high sensitivity (≥97%) and specificity (≥74%) for food insecurity amid high-risk population subgroups. Another advantage of adopting the in-use tool was that it had already been validated in Spanish speakers (Harrison, 2003).

Lastly, a report involving Community Engagement programs found that the Hunger Vital Sign™ screening tool can help clinicians and other healthcare professionals identify vulnerable populations needing food security and develop effective interventions to meet their needs (Flores

& Amiri, 2019). This investigation showed that healthcare providers such as physicians, advanced-level nurse practitioners, and registered dietitians using the screening tool recognized food insecurity and were able to give customized evidence-based interventions to enhance health outcomes.

Methodology

Plan-Do-Study-Act Change Model

The Plan-Do-Check-Act cycle, first described by Walter Stewart in the 1920s, was the precursor to the Plan-Do-Study-Act (PDSA) model (see Figure 1) (Taylor et al., 2014). This QI project used the PDSA model for the implementation of the interventions. The PDSA model is used in improving health care because it delivers a framework for iterative testing of adjustments to enhance system quality (Taylor et al., 2014).

Figure 1

Plan-Do-Study-Act Diagram

The PDSA methodology tests newly implemented changes by following the four steps

that break the tasks down. Hence, they are more manageable (Agency for Healthcare Research and Quality [AHRQ], 2020). The first step is the *Plan*, which encompasses a specific project strategy that includes what will be tested, steps and tools for implementation, anticipated outcomes, and the population of interest (AHRQ, 2020). The second step is *Do*, the project implementation phase (AHRQ, 2020). During the *Do* stage, the project lead and others observe the project execution and record the data to analyze in step 3 (AHRQ, 2020). In step 3, the *Study* stage, investigators analyze the data collected to determine whether the initial objectives and anticipated findings were met (AHRQ, 2020). Lastly, the results are recorded and analyzed during the *Act* step (AHRQ, 2020). During this step, the project team determines what might be done differently in the next cycle (AHRQ, 2020).

The clinic's microsystem assessment revealed a need for the screening of food insecurity. As previously mentioned, this non-profit's owners voiced the importance of this topic. They agreed that performing a food insecurity screening on clients experiencing anxiety or depression was needed. Several stakeholders participated in the project interventions, and their contributions all served in the outcomes and fulfillment of the project. This project included patients, providers, social workers, front office staff, medical assistants, chief operating officers, a patient navigator, community resources, and another non-profit organization's guidance.

Project Intervention

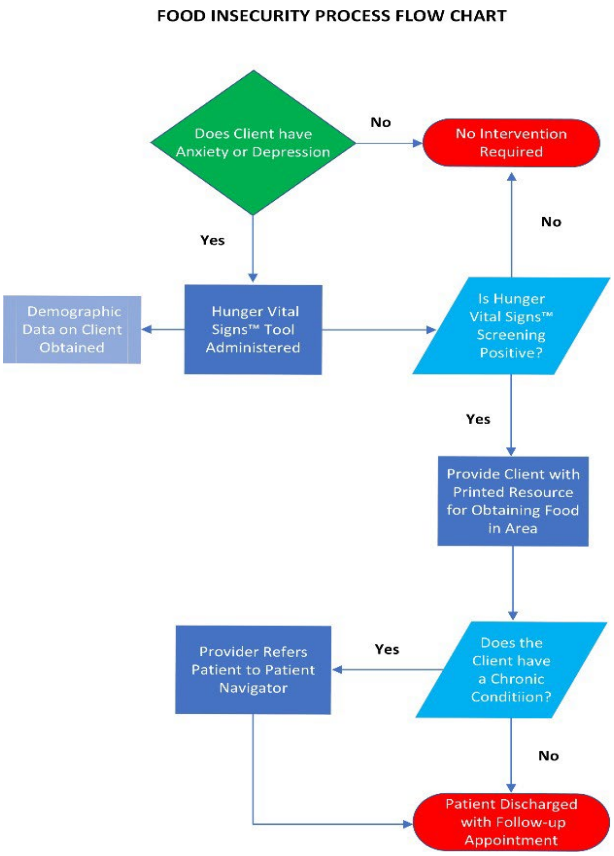
The first steps for this quality improvement project were educating and coordinating with the PMHNP. The provider, the front office personnel, and the patient navigator were educated on the Hunger Vital Sign™ screening tool (See Appendix B). The front office staff were given signage as a reminder to give the screening paperwork to the PMHNP's patients. During the first PDSA cycle, the screening population was only clients with appointments with the PMHNP.

Intervention Plan

A data collection form was developed in English and Spanish to collect demographic data, including the Hunger Vital Sign™ screening tool (See Appendix C). After completion, the PMHNP used clinical judgment to assess the results, educate the patient, and provide further referral if indicated. A process flow chart outlining the steps for screening and referral was created and displayed in the PMHNP's office (See Figure 2). In addition to being educated about the project intervention, the provider and the project lead clarified options for administering the screening tool, the required clinical judgment, the provided resources, and the referral to the patient navigator.

Figure 2

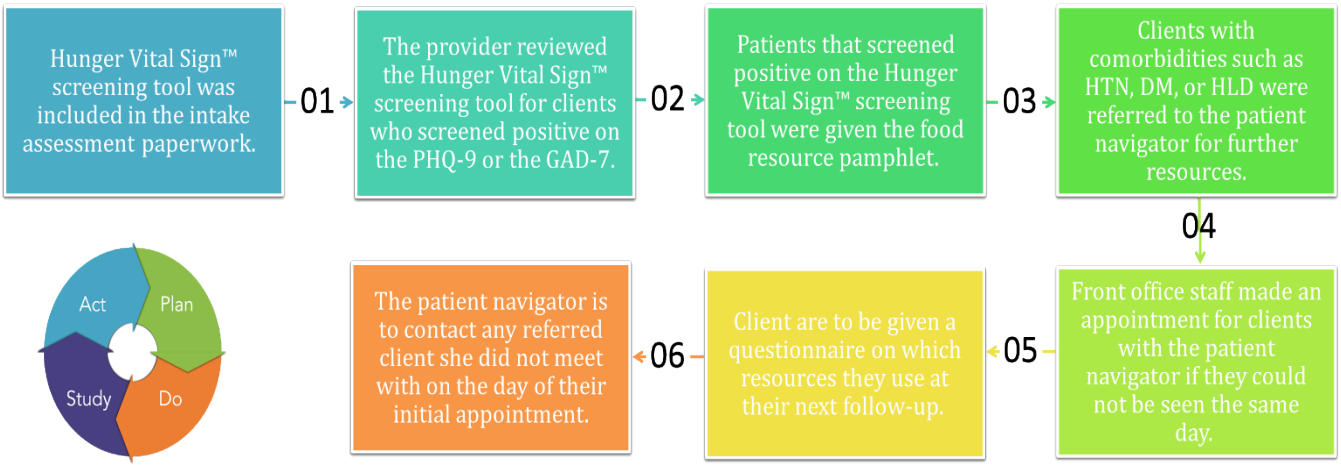
Food Insecurity Process Flow Chart



Once clients checked in for their appointment at the front desk, they were given the food insecurity screening form to fill out as they waited in the waiting area. Next, the provider reviewed the form while the patient was being seen. If the client screened positive for food insecurity, she provided them with the *Food Resources Pamphlet* in either English or Spanish (See Appendix D). If the client screened positive for food insecurity and had a chronic condition, perlipidemia, or diabetes, they were referred to the patient navigator for additional resources (See Appendix E). The provider placed the negative and the positive screenings in the file drop box of the patient navigator. made an appointment for the client at check-out with the patient navigator if they could not be seen the same day. The patient navigator contacted any client she did not meet on the day of their initial appointment. The patient navigator followed up with the clients to assist them in using the provided resources. See Figure 3 for a flow chart of the Project Interventions.

Figure 3

Project Interventions Flow Chart



Setting and Population

As mentioned, the project was implemented at a non-profit mental health organization in South Texas. The project was conducted over 13 weeks. The top five diagnoses for the clinic are anxiety, depression, substance use disorder, bipolar disorder, and ADHD, with clients often having overlapping diagnoses. The target population was adults aged 18 years and older with signs and symptoms of anxiety or depression.

Evaluation and Data Analysis

The project lead monitored the positive screenings and computed the data in an Excel spreadsheet. The spreadsheet included PHQ-9, GAD-7 scores, Hunger Vital Sign™ results broken down by question, and patient demographic data. The project lead calculated the percentages for each objective.

During the patient's next visit, a follow-up questionnaire was to be given to the clients to record what resources they used. However, the questionnaire still needs to be implemented due to the timing and delays related to the multiple PDSA cycle changes.

Plan-Do-Study-Act Cycle Changes

This project executed three PDSA cycles. During the first PDSA cycle, a limited number of clients were screened, resulting in little data. After studying the cycle, a needed change was identified to increase the number of clients screened for food insecurity. It was theorized that since the PMHNP's clients are already undergoing treatment for anxiety and depression, their anxiety or depression was most likely stable, leading to a small number of positive screens. After consulting with the CEOs and gaining their permission, the screenings expanded to the clients of other providers. Therefore, for Cycle 2, the PHQ-9 and the GAD-7 were added to all provider intake forms. While adding the forms to the packets, it was discovered that the other providers did not routinely use the PHQ-9 or GAD-7. Therefore, the use of the PHQ-9 and GAD-7 was

reinforced.

The population being screened increased during the second PDSA cycle, but the results were still limited. When this cycle was studied, it was found that the clients enrolled in the grant programs were not offered the food insecurity screening. This was due to the grant program clients filling out different paperwork than the general intake clients. Also, unlike other clients, those in the grant program completed their intake paperwork while meeting with the provider for the first time. This led to another improvement process change and a third PDSA cycle. Once the grant program clients were included, more results were obtained.

Ethical Considerations

This Doctor of Nursing project was reviewed to ensure respect for human subjects and scientific value by the University Institutional Review Board. It was determined that this QI project did not meet the federal regulatory requirements for human subjects research (see Appendix F). Hunt, Dunn, Harrison, and Bailey (2021) explored ethical considerations when conducting a QI project. The report focused on the ethical considerations of dignity, respect, and justice. The review found that QI projects may modify the delivery of patient care, posing the risk of unintended consequences that can lead to harm to patients and staff (Hunt et al., 2021). For example, interventions can take time from staff priorities if the QI project is not planned and implemented correctly (Hunt et al., 2021). This QI project respected the safety and dignity of everyone involved and adhered to safe practices.

This QI project also followed the framework outlined in the Institute of Medicine's (IOM) report, *Crossing the Quality Chasm: A New Health System for the 21st Century* (IOM, 2001). These six aims for improving healthcare are:

- Safe—care intended to help patients should not cause injury.

- Effective—provide evidence-based care for those who will benefit and not those who are not likely to benefit.
- Patient-centered—provide care based on the patient's wants, needs, and values.
- Timely—reduce delays that may be harmful to patients and caregivers.
- Efficient—provide care that is not wasteful.
- Equitable—ensure fair, equal, just, and right care.

The project ensured *safe* care by identifying those with food insecurity and providing resources for food so that clients could meet unmet basic needs, allowing them to concentrate on mental health treatment. The interventions were *effective* because they were based on evidence-based literature. Assessing patients for food insecurity meets a patient's need; therefore, the project meets the *patient-centered* aim. Providing food resources at the visit when food insecurity is identified is *timely* and *efficient*. Lastly, because resources are given to all patients who screen positive for food insecurity and do not exclude anyone based on gender, race, ethnicity, or undocumented status, safeguards *equity*.

Moreover, when a Doctor of Nursing Practice student, a Registered Nurse, takes the lead in designing and implementing a project, the project environment is enriched by the ethical principles of nursing practice. Nurses advance the ethical and equitable practice of nursing by creating and sustaining environments that uphold established standards of professional conduct. (American Nurses Association Center for Ethics and Human Rights, 2016).

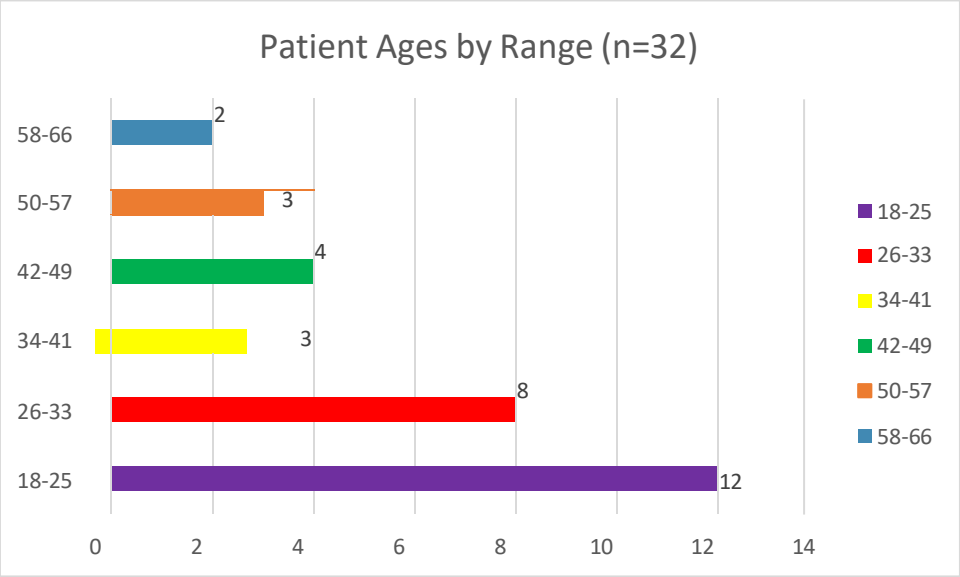
Results

The project period spanned from April 19, 2023, through July 18, 2023. There were 45 patients screened for food insecurity. However, only 34 were eligible to be included in the data analysis. Five clients were not included because they were below the age of 18 (2 in the first

cycle, 1 in the second cycle, 1 in the third cycle). Six clients were excluded because of missing data (0 in the first cycle, 1 in the second, and 4 in the third cycle). Two clients had missing dates of birth but were included in the data analysis. See Figure 4 for age range distribution. The data showed that 53% (n=18) were male and 47% (n=16) were female. All participants were Hispanic (100%).

Figure 4

Patient Ages by Range



The results of the analysis of the data related to each objective are presented in Table 1. A detailed explanation of whether the objectives were met follows.

The project's first objective was that 80% of clients diagnosed with anxiety or depression would be screened at least once with the Hunger Vital Sign™ screening tool during their visit with the PMHNP during the project implementation period. This objective was *not met* despite the provider and staff adhering to the intervention plan. This was due to the challenge of determining if clinic staff screened every patient with anxiety or depression for food insecurity.

The second objective was 100% met—all patients who screened positive for food

insecurity were given resources. Objective 3 was 100% met—all clients, even those without a chronic condition, were referred to the patient navigator. The fourth objective was unmet, which states that 50% of clients would use at least one of the resources provided. Due to the project length and numerous PDSA cycles, information on what resources the clients used was not obtained. This quality improvement project's fifth and final objective was 100% met. The patient navigator consulted with all patients who screened positive for food insecurity via phone or in person.

Table 1

Results for Objectives

Objectives	Results
1. 80% of clients with symptoms of anxiety or depression will be screened at least once with the Hunger Vital Sign™ screening tool during their visit with PMHNP during the project implementation period.	Not Met
2. 90% of those who screen positive on the Hunger Vital Sign™ tool for food insecurity will receive a resource pamphlet for obtaining nutritious food during the project implementation period.	Met 100%
3. 50 % of individuals who screen positive for food insecurity on the Hunger Vital Sign™ tools and have a chronic condition, such as hypertension, diabetes, or hyperlipidemia, will be referred by the PMHNP to the patient navigator for additional resources.	Met 100% All clients referred to PN
4. Of the clients that received the resource pamphlet, 50% will use at least one of the resources provided	Not Met
5. 50% of the clients referred to the patient navigator will keep their appointment with the patient navigator to receive resources.	Met 100% PN consulted with all clients

Note. PMHNP = Psychiatric Mental Health Nurse Practitioner. PN = Patient Navigator.

Additional Results

Additional results for the 34 clients showed that 21 clients out of 34 screened positive for

food insecurity (61.8%). See Figure 5 for a graph of the positive or negative screening of the Hunger Vital Sign™ results plotted against the screening results for the PHQ-9 and GAD-7. Of the food-insecure clients, 15 also screened positive for anxiety or depression (71.4%). If the client scored 10 or greater on the GAD-7 or PHQ-9, it indicated that the provider needed to assess the client further. In Figures 6 and 7, the categories for the PHQ-9 and GAD-7 are plotted against the positive and negative results for the Hunger Vital Sign™ screening tool. Both the PHQ-9 and the GAD-7 graphs show an upward trend, which indicates that high scores on the PHQ-9 or GAD-7 are associated with a positive screen for food insecurity.

Figure 5

Hunger Vital Sign™ by Depression or Anxiety

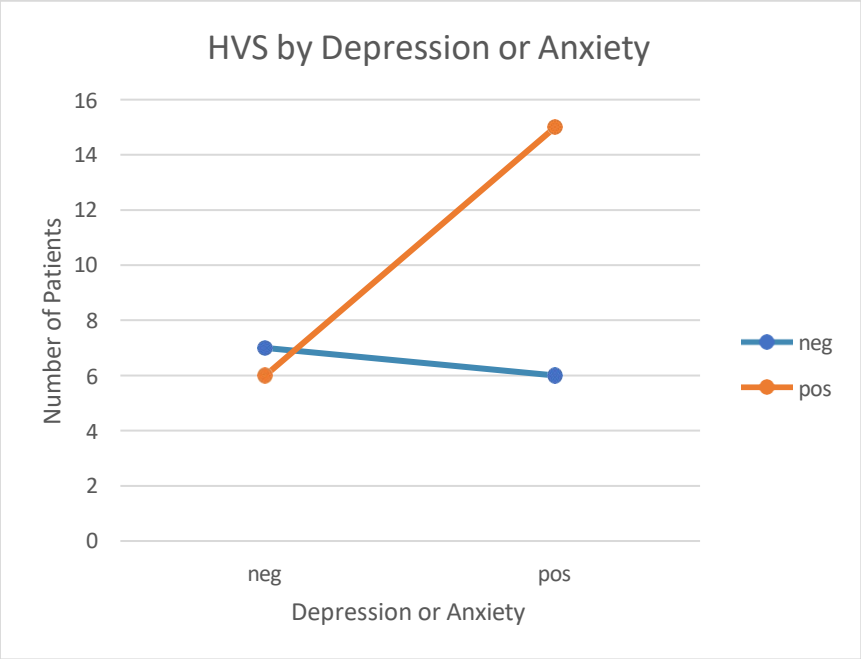


Figure 6

Hunger Vital Sign™ by PHQ-9 Category

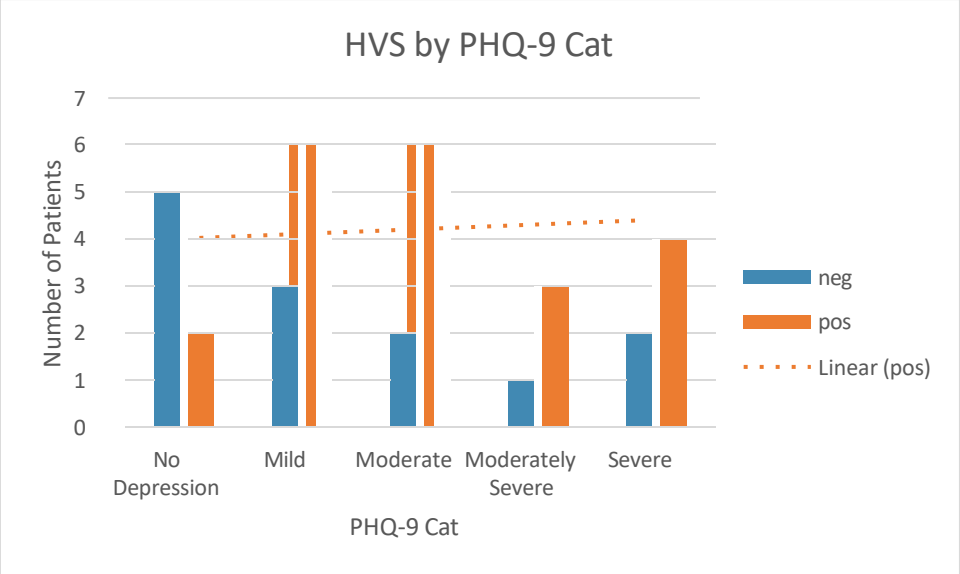
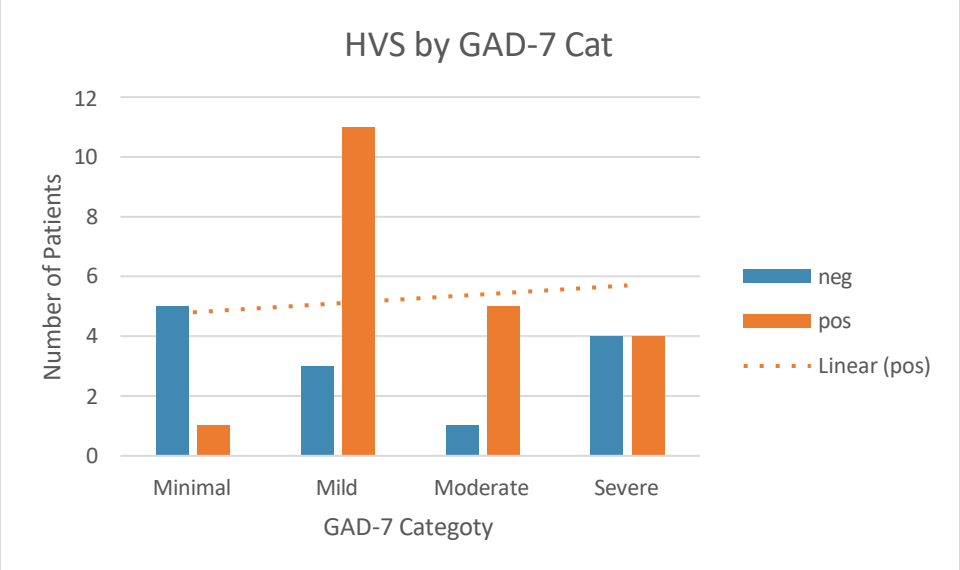


Figure 7

Hunger Vital Sign™ by GAD-7 Category



Discussion

Successes and difficulties both occurred during the project's execution phase. Building relationships with each professional at the clinic with various responsibilities was difficult. The scheduling and coordination of the Hunger Vital Sign™ tool's implementation with the PMHNP, who only sees clients part-time and has a full patient schedule, was a hurdle. Also, the clinic's personnel are continually busy, and finding the most efficient way to make a practice change was difficult because many team members juggle multiple roles.

Organizational Barriers

An organizational barrier identified in the project was the unclear job responsibilities of the staff members. For example, many staff members were responsible for the tasks of multiple job roles. It took time to determine who would assist the clients in finding food resources in the community. Eventually, it was decided that one of the case workers, who also has the role of patient navigator, would lead the task of consulting and following up with the food-insecure clients. Furthermore, communication with the staff was sometimes slow, making moving the project to the implementation period difficult.

Results Compared to the Evidence

The project's results are consistent with the current evidence that signs and symptoms of anxiety or depression place a person at risk for food insecurity. For example, the Level III systematic review with meta-analysis by Arenas and associates (2019) reviewed the effects of food insecurity on mental health. A Level IV non-experimental study found that adults with exceptionally low food insecurity were more likely to screen positive for depression (Wolfson et al., 2021). Just as these studies found a strong association between food insecurity and depression or anxiety, the results presented here show a trend toward an association between

these variables. The results from this quality improvement project support that food insecurity and mental health have an important relationship since over 70% of food-insecure clients also suffered from anxiety or depression.

Limitations

A limitation of the project, especially in the first PDSA cycle, was the limited number of clients who qualified for screening with the Hunger Vital Sign™ tool. As mentioned above, the PMHNP works part-time, which affected the number of clients that were being screened. Later in the implementation process, the other providers' inconsistent use of the PHQ-9 and the GAD-7 proved to be a further limitation. The staff had no protocol to regularly screen clients with PHQ-9 or GAD-7.

Lastly, keeping track of each grant program was difficult because each operates in a silo. However, the interventions were more successful after connecting with the employees. The staff showed great interest in adopting the adjustments to the implementation plan during staff education sessions.

Recommendations

The recommendation is to screen every patient for food insecurity who is also being screened for anxiety or depression. Since clients are more likely to be food insecure if they are anxious or depressed, it is a priority for the provider to assess food insecurity as a factor in the client's treatment. An additional recommended modification for this quality improvement project is to keep track of the resources the clients use to determine which resources help the client access food. With the clinic's growth, it would be beneficial to add a registered dietician and diabetes educator. Since being food insecure relates to cardiac disease, educating the clients about the risks associated with food insecurity is essential. Finally, it is recommended that

screening be conducted on all clients since the clinic primarily focuses on mental health care.

Sustainability

The clinic continues to use the interventions begun during the project. There are plans to apply for an on-site food pantry grant to provide the community with immediate nutritional resources. A clinic food pantry would make obtaining the basic need of food more accessible for food-insecure clients. Additionally, a sign of sustainability is that the clinic plans to expand the screening to all clients, not just those with anxiety or depression, further combatting food insecurity in the community.

Implications for Practice

By addressing food insecurity in those who experience anxiety or depression, healthcare providers engage in holistic care by addressing clients' physiological and psychological needs. Doctoral-prepared advanced practice nurses also have the knowledge and skills to help the underserved with upstream health interventions. By bringing awareness to food insecurity and hunger in a community with many equity-related challenges, an advanced practice registered nurse (APRN) practitioner can make a real difference by serving as an advocate and role model for the disadvantaged and poor. Moreover, APRNs can demonstrate a standard of care that exemplifies the American Association of Colleges of Nursing's [AACN] *Essentials of Doctoral Education for Advanced Nursing Practice* (2006). This project encompassed all the Doctoral Essentials with emphasis on the following standards.

I. **Scientific Underpinnings for Practice**

This essential upholds the principles and laws that govern the life process, well-being, and optimal function of humans, sick or well. In addition, it addresses the patterns of human behavior and the relationship between one's environment in both stable and unstable times (AACN,

2006). This QI project applied Essential I by performing a thorough community needs assessment focusing on the social determinants of health that the population of interest faces.

II. Organizational and Systems Leadership for Quality

Graduate Essential II entails the application of leadership in organizational and system administration, emphasizing safe practice as a responsibility of the advanced practice nurse (AACN, 2006). Furthermore, competence in this essential requires skill in analyzing organizations and system problems to initiate practice change (AACN, 2006). The process of this project required advanced-level leadership skills and the ability to work competently with various processes.

V. Health Care Policy for Advocacy in Health Care

Essential V of the Doctoral Essentials (AACN, 2006) states that "DNP [Doctor of Nursing Practice] graduates are prepared to design, influence, and implement health care policies that frame health care…" (p. 13). This project required an understanding of policies related to government assistance for lower-income individuals and their implementation.

VI. Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Doctoral Essential VI enforces the teamwork, leadership, and knowledge of the advanced practice nurse to effectively collaborate with various professionals to deliver the IOM's standard of care. As mentioned above, this project followed the IOM's standards, which call for safe, timely, effective, efficient, equitable, and patient-centered practice (AHRQ, 2022)

Conclusion

Studies have demonstrated a link between food insecurity and an increased risk of mental health issues like depression, anxiety, and panic disorder (Nagata et al., 2019). This quality

improvement project can potentially improve mental health outcomes by reducing food insecurity using an evidence-based strategy for screening and providing resources for clients to access nutritious and inexpensive food. The social determinants of health for the population of interest place them at risk for food insecurity; hence, the screening can be used for other clients at this practice. Screening for food insecurity can change practice and help the community. Educating the staff on the prevalence and importance of food insecurity screening can positively change patient outcomes. Projects that screen for food insecurity can aid in identifying those in need of food assistance and give them access to the services and resources that can help them live prosperous lives. This quality improvement project not only changed clinical practice by identifying clients with anxiety or depression and food insecurity but also helped bring the issue of food insecurity to the forefront of the community and may help individuals recently diagnosed with anxiety or depression have better mental health by eliminating food insecurity.

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Appendix A

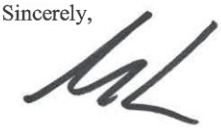
Letter of Support

April 2, 2023

Manuel G. Sanchez, Jr., LPC
PILLAR CEO & Co-Founder
6406 McPherson Unit #2
Laredo, TX 78041

This letter serves as confirmation of organizational support for Kelsie Kroll to perform their DNP project titled A Quality Improvement Project to Screen for Food Insecurity in Adults Who Screen Positive for Anxiety or Depression. This project will implement the Hunger Vital Sign screening tool to identify food insecurity in clients who have anxiety or depression and provide resources to obtain nutritious food to those that screen positive. We commit to supporting the implementation of this project within PILLAR. We commit to providing on-site guidance, and appropriate resources (as applicable) for the project initiatives, including securing any needed approvals for data collection and storage in accordance with our local site requirements and institutional policies and procedures. Dr. Gustavo Salazar, LPC will serve as the site organizational sponsor under PILLAR and is qualified to serve in this role due to his extensive work with people with a myriad of needs that impact their behavioral health status to include food insecurity.

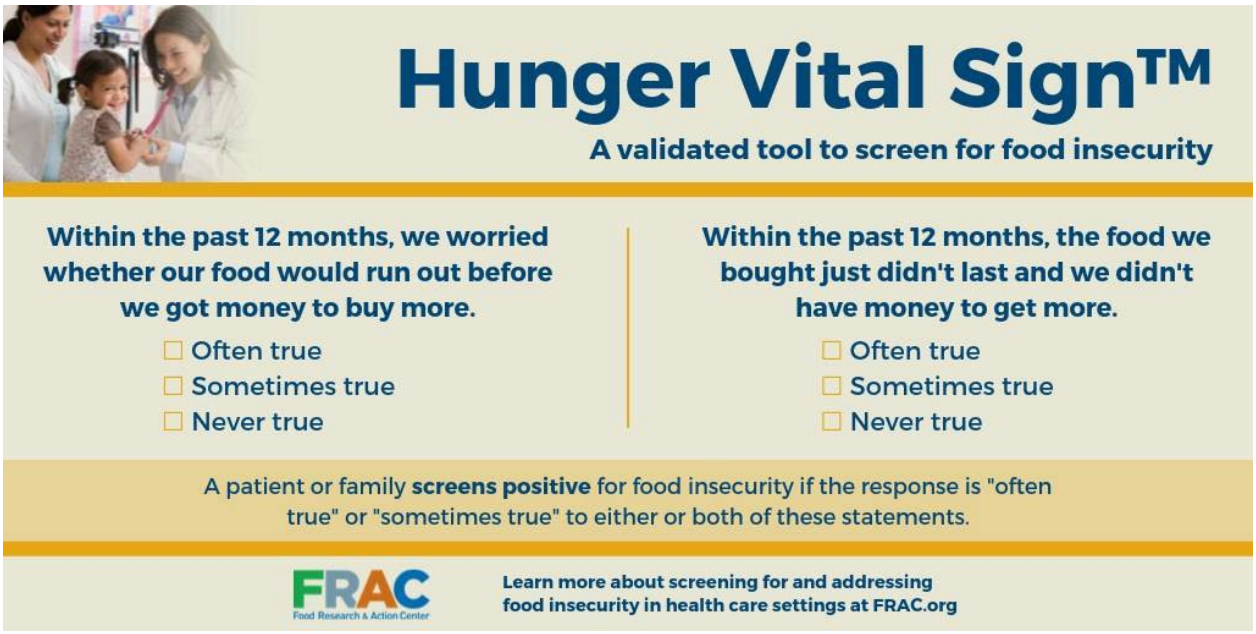
Sincerely,



Manuel G. Sanchez, Jr., LPC
PILLAR CEO & Co-Founder

Appendix B

Hunger Vital Sign™ Screening Tool



CHILDREN'S HealthWatch

The Hunger Vital Sign™
English to Spanish Translation

English
For each of the following statements, please tell me which one is "often true," "sometimes true" or "never true" for the past 12 months, that is since last [name of current month].

1. We (I) worried whether our food would run out before we (I) got money to buy more

2. The food that we (I) bought just didn't last and we (I) didn't have money to get more

Spanish
Por cada una de las siguientes declaraciones, por favor indique si la declaracion se aplica a su familia "frecuentemente," "a veces" o "nunca" durante los últimos 12 meses, es decir desde [nombre del mes actual] del año pasado.

1. Estábamos (Estaba) preocupado(s) de que los alimentos se acabaran antes de que tuviéramos (tuviera) suficiente dinero para comprar más.

2. Los alimentos que compramos (compré) no duraron mucho y no teníamos (tenía) suficiente dinero para comprar más.

Appendix C

Data Collection Form (English)

SURVEY

NAME: _____ Date: _____

Phone Number: _____ DATE OF BIRTH: _____

GENDER: ◯ Male ◯ Female OTHER _____ ◯ Prefer Not to Answer

ZIP CODE: _____ RELATIONSHIP STATUS (circle): Married Single Divorced Widowed

ETHNICITY: ◯ Hispanic or Latino ◯ Not Hispanic or Latino

RACE:

◯ White ◯ Black or African American ◯ American Indian or Alaska Native ◯ Asian ◯ Native Hawaiian or Other Pacific Islander ◯ Other

Are you a legal resident of the United States? ◯ Yes ◯ No

HIGHEST LEVEL OF EDUCATION:

◯ No High School ◯ Some High School School ◯ Bachelor's Degree ◯ Master's Degree ◯ Ph.D. or higher ◯ Trade School

NUMBER OF PEOPLE LIVING IN YOUR HOUSEHOLD: _____

Do you have a history of any of the following?

◯ Diabetes ◯ High blood pressure ◯ Higher Cholesterol

The Children's HealthWatch Hunger Vital Sign™

For each of the following statements, please mark "often true," "sometimes true" or "never true" for the past 12 months.

Within the past 12 months, we worried whether our food would run out before we got money to buy more.

◯ often true ◯ sometimes true ◯ never true

Within the past 12 months the food we bought just didn't last and we didn't have money to get more.

◯ often true ◯ sometimes true ◯ never true

Hager, E. R., Quigg, A. M., Black , M. M., Coleman, S. M., Heeren , T., Rose-Jacobs , R., Cook, J. T., Ettinger de Cuba, S. A., Casey , P. H., Chilton, M., Cutts , D. B., Meyers, A. F., & Frank , D. A. (2010). Development and Validity of a 2-Item Screen to Identify Families at Risk for Food Insecurity. *Pediatrics, 126*(1), e26-e32.

Data Collection Form (Spanish)

Encuesta

Nombre: _____ **Fecha:** _____

Numero De Telphono:_____ **Fecha de nacimiento:** _____

GÉNERO: ◯ **Masculino** ◯ **Femenina** **Otro:** _____ ◯ **Prefiero no decir**

CÓDIGO POSTAL: _____

ESTADO DE LA RELACIÓN (círculo): Casado Soltero Divorciado Viudo

Etnicidad: ◯ **Hispano o latino** ◯ **No hispano o latino**

RACE:

◯ **Blanco** ◯ **Negro o afroamericano** ◯ **India americana.** ◯ **Asiático** ◯ **Nativo Hawaiano**

◯ **Isleño del pacífico** ◯ **Nativo de Alaska** ◯ **Otro**

¿Es usted residente legal de los Estados Unidos? ◯ **Si** ◯ **o**

EL MAS ALTO NIVEL DE EDUCACIÓN:

◯ **Sin Escuela Secundaria** ◯ **Algún instituto** ◯ **Licenciatura** ◯ **Maestria** ◯ **Doctorado** ◯ **Escuela de Comercio**

NÚMERO DE PERSONAS QUE VIVEN EN SU HOGAR: _____

¿Tiene antecedentes de alguno de los siguientes?

◯ **Diabetes** ◯ **Hipertensión** ◯ **Colesterol alto**

Children's HealthWatch Hunger Vital Sign™

Para cada una de las siguientes afirmaciones, marque "a menudo cierto", "algunas veces cierto" o "nunca cierto" durante los últimos 12 meses.

En los últimos 12 meses, nos preocupaba si nuestra comida se acabaría antes de tener dinero para comprar más.

◯ **Frecuentemente** ◯ **A Veces** ◯ **Nunca**

En los últimos 12 meses, la comida que compramos simplemente no duró y no teníamos dinero para comprar más.

◯ **Frecuentemente** ◯ **A Veces** ◯ **Nunca**

Hager, E. R., Quigg, A. M., Black , M. M., Coleman, S. M., Heeren , T., Rose-Jacobs , R., Cook, J. T., Ettinger de Cuba, S. A., Casey , P. H., Chilton, M., Cutts , D. B., Meyers, A. F., & Frank , D. A. (2010). Development and Validity of a 2-Item Screen to Identify Families at Risk for Food Insecurity. *Pediatrics, 126*(1), e26-e32.

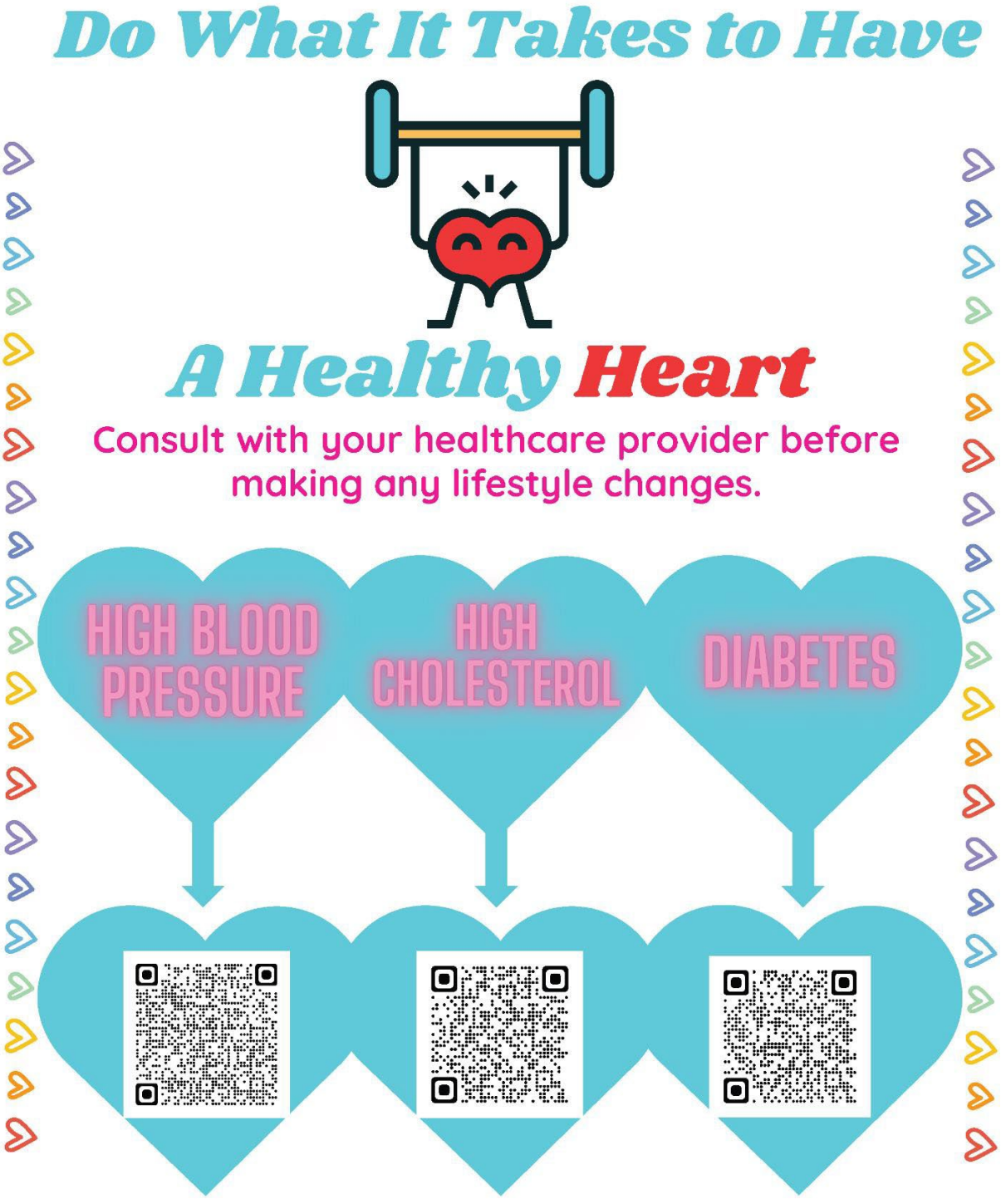
Appendix D

Patient Food Resource Pamphlet (English)

Patient Food Resource Pamphlet (Spanish)

Appendix E

Healthy Living Handout (English)




American Heart Association.
10 ways to improve your heart health
1 Balance calories eaten with physical activity.
2 Reach for a variety of fruits and vegetables.
3 Choose whole grains.
4 Include healthy protein sources, mostly plants and seafood.
YOGURT
5 Use liquid non-tropical plant oils.
CANOLA OIL
6 Choose minimally processed foods.
FROZEN
FROZEN
7 Subtract added sugars.
WATER
8 Cut down on salt.
BEAN SOUP
NO SALT
BEAN SOUP
9 Limit alcohol.
10 Do all this wherever you eat!
Need more food for thought? Go to www.heart.org/eatsmart

Appendix E

Healthy Living Handout (Spanish)


American Heart Association.
10 maneras de mejorar tu salud cardíaca
1 Equilibra las calorías que comes con actividad física.
2 Busca una variedad de frutas y verduras.
3 Elige productos integrales.
4 Incluye fuentes de proteínas saludables, principalmente plantas y mariscos.
YOGURT
5 Usa aceites líquidos que no sean de plantas tropicales.
CANOLA OIL
6 Elige alimentos mínimamente procesados.
FROZEN
FROZEN
7 Evita productos con azucares añadidos.
WATER
8 Reduce la sal.
BEAN SOUP
NO SALT
BEAN SOUP
9 Limita el consumo de alcohol.
10 ¡Haz todo esto dondequiera que comas!
¿Quieres informarte más? Go to www.heart.org/eatsmart
© 2022 American Heart Association, Inc., una organización sin fines de lucro 501(c)(3). Todos los derechos reservados. DS18643 3/22

Appendix F

IRB Determination Letter

UNIVERSITY OF THE INCARNATE WORD

April 18, 2023

PI: Ms. Kelsie Kroll
Protocol title: A Quality Improvement Project to Screen for Food Insecurity in Adults with Anxiety or Depression
Project link: https://uiw.forms.ethicalreviewmanager.com/Project/Index/5819

Hello,

Your project described above has been reviewed and found to not meet the federal regulatory requirements for human subjects research based on the following criteria:

- The intervention with patients is solely for the purpose of improving patient care,
- The implemented tool is a known and accepted practice,
- The data collected is for assessing the quality of care only, and
- Any dissemination of quality improvement results is not intended to contribute to generalizable knowledge.

Your project is determined to be Quality Improvement and, as such, may not be referred to as "research." Should the results of the quality improvement project be disseminated in publication or presentation, include the following statement, "This project was undertaken as a Quality Improvement project and as such does not constitute human subjects research."

Keep this document with your project records as your "**Not Regulated Research Determination**" letter. Please use IRB number 2023-1379-NRR when inquiring about or referencing this determination. Should you determine at any point you wish to add additional elements to the project, please contact us before initiating those components as they may impact this determination.

Please contact us with any questions or for information regarding the IRB or the review process.

Sincerely,

Office of Research and Graduate Studies
Research Compliance
University of the Incarnate Word
(210) 805-3555
irb@uiwtx.edu

IRB #: 00005059 / FWA #: 00009201