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Review

Nutrition Assessment in Student-Run Clinics Serving Hispanic/Latinx Patients

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Abstract

Background: The patients of student-run clinics, especially Hispanic/Latinx patients, are at a disproportionately high risk for chronic disease due to the negative impacts of the social determinants of health, including barriers to obtaining healthcare, ranging from lack of financial resources to fear of deportation. Nutrition services are pivotal in providing effective, holistic healthcare for this patient population seeking care at student-run clinics. The purpose of this review is to examine how nutrition assessment is conducted at student-run clinics and to determine if the nutrition assessments are culturally tailored.
Methods: Three scientific databases were searched using keywords focused on the concept of nutrition assessment in student-run clinics serving the Hispanic/Latinx population. The articles generated were reviewed by 4 independent reviewers to determine key elements related to nutrition assessment and/or nutrition services provided in student-run, free, or community clinics, with attention to addressing social and cultural barriers addressed by the clinic.
Results: A search of the literature related to nutrition services at student-run clinics yielded 3 results for nutrition assessment of the Hispanic/Latinx population in student-run, free, or community clinics. Several articles presented research on health behavioral counseling and food insecurity screening, but few studies were conducted specifically on nutrition assessment, especially for the Hispanic/Latinx population.
Conclusions: The current assessment tools have widespread use in nutrition assessment; however, they are insufficient for the distinctive characteristics of the Hispanic or Latinx population being served in a student-run clinic. Including dietetics students into a student-run clinic, if plausible, and/or a culturally sensitive guided nutrition assessment tool for students would be of benefit to adequately address the relevant social determinants of health in the nutrition assessment of patients at student-run clinics.

Introduction

The patients of student-run clinics experience disproportionately high risk for chronic disease due to negative impacts of social determinants of health, including barriers to obtaining healthcare, ranging from lack of financial resources to fear of deportation.[1,2] In patients utilizing student-run clinics in the United States (US), 31.0% reported race/ethnicity as Hispanic/Latinx, however this percentage may have changed in the last several years.[3] The Hispanic/Latinx patients at student-run clinics, otherwise ineligible for healthcare coverage, are at risk for nutrition-related diseases such as cardiovascular disease (CVD) and Type 2 Diabetes Mellitus (DM2) due to high rates of obesity and other comorbidities.[4] Therefore, nutrition services are pivotal in providing effective, holistic healthcare for this patient population.

CVD and DM2 are prevalent within the Hispanic/Latinx population; 22.0% of adults are estimated to suffer from high blood pressure, >81% of men and 78.0% of women are overweight or obese, and <16.0% of adults meet federal physical activity guidelines.[5] CVD among immigrant

Latinas is particularly alarming and is the leading cause of death amongst this subgroup.[4] Additionally, the American Heart Association found knowledge of heart health behaviors and awareness of the impacts of CVD was low among immigrant Latinas.[6] US nutrition programs targeting immigrant Hispanic/Latinx patients are sparse despite the apparent need.[7] The Hispanic/Latinx population is the largest minority group in the US, at 18.3%,[8] thus nutrition programs tailored to this population can be impactful.

The Nutrition and Dietetics Code of Ethics, under the domain of non-maleficence, maintains that professionals consider unique values and circumstances of patients and communities.[9] Nutrition assessment utilizing standardized questions may not address the full scope of nutrition-related concerns.[10] Approximately 85.0% of dietetics students are not Hispanic/Latinx race/ethnicity, thus care students provide at clinics with diverse patients is usually cross-cultural.[11] Under the category of social determinants of health in Healthy People 2030, one goal is to 'increase access to comprehensive, high quality healthcare services'[12]; therefore healthcare services must be culturally appropriate to be high quality and reduce health inequities. The purpose of this literature review is to examine how nutrition assessment is conducted at student-run clinics and to determine whether nutrition assessments are culturally tailored.

Social Determinants of Health

Hispanic/Latinx communities require healthcare, including nutrition services, that address social determinants of health.[13] Barriers to healthcare among this patient population may include fear of deportation, language, resource constraints, such as a lack of financial assets and transportation, national policies excluding undocumented immigrants from receiving healthcare, and shame regarding a lack of knowledge within the healthcare system.[1] Decreased chances of preventative screening and access to healthcare, up to 3 days of prolonged hospital stay if an interpreter is absent, increased risks of falls, increased readmission rates among chronic diseases (15.0-25.0%), and surgery delays are impacts of language barriers on patient outcomes in a clinical setting.[14] A potential nutrition-specific barrier includes embarrassment due to the inability to afford nutritious foods.[15] Differing dietary patterns, food staples, and cooking methods depending on the patient's country of origin make it difficult for a student or provider to have a comprehensive grasp of food culture. Patient education on culturally appropriate food selections for long-term health is critical.

Hispanic/Latinx individuals experience variable degrees of acculturation, struggles with food insecurity, and incidence of chronic non-communicable disease.[10,16,17] Low-income, uninsured people are at increased risk for food insecurity, leading to choices of energy dense foods, increasing the risk of obesity.[18] Romero-Gwynn studied obesity in Californian Mexican Americans and found that Hispanic/Latinx immigrants underwent acculturation, replacing much of their traditional diet for foods higher in fats and sugars.[16] For example, flour tortillas were consumed instead of lower-fat, whole grain corn tortillas.[10] The Hispanic/Latinx population in the US is at higher risk for developing DM2 due to genetic, socioeconomic, and cultural factors, and risk for DM2 increases with the degree of acculturation.[7] The Hispanic/Latinx population struggles with food insecurity more than the non-Hispanic white population. The United States Department of Agriculture (USDA) Economic Research Services estimated that in 2019, 15.6% of US Hispanic households experienced food insecurity, considerably higher than the national average of 10.5%.[19] Moreover, food insecurity is associated with DM2. A cross-sectional study of patients of federally qualified health centers found that 46.0% of patients, the majority of whom were Hispanic/Latinx, were food insecure. Food insecurity was associated with difficulty following a diabetic diet; while all of the patients had diabetes, those with food insecurity had a significantly higher hemoglobin A1c.[20]

The Nutrition Care Process

Little information is known about usage and applicability of existing nutrition assessment tools to obtain, corroborate, and interpret data regarding nutrition-related issues, their causes, and significance for the Hispanic/Latinx patients of student-run clinics. An adequate nutrition

assessment tool for a specific population requires examining the community as a whole, identifying nutritional status and quality of life.[21] Gaps in literature exist for nutrition information specific to Hispanic/Latinx patients who seek care at student-run clinics, as a culturally appropriate and setting-specific nutrition assessment tool was not identified.

The Nutrition Care Process (NCP), the standardized system by which nutrition services are conducted, includes nutrition assessment, diagnosis, intervention, and monitoring/evaluation. Nutrition assessment is the first step of the NCP and is the basis for subsequent steps; thus, is critical. Nutrition assessment is the collection of relevant information about an individual to identify nutritional status, diagnoses, and interventions as appropriate. Patient data is collected by chart review, patient interviews, and/or a discussion with family or caretakers. Information relevant to the patient's nutritional assessment is organized into five domains: food/nutrition-related history, anthropometric measures, biochemical and medical data, nutrition-focused physical findings, and client history. A student may be able to obtain some or all pertinent information from each domain; more information gathered ensures a comprehensive assessment.[22] If relevant information is not available, clinical judgment determines the patient's nutritional needs with limited information.

Nutrition Assessment Tools

Tools or guides for students can improve the efficiency and comprehensiveness of nutrition care. Two validated nutrition assessment tools, the Subjective Global Assessment (SGA)[23] and the Mini Nutritional Assessment (MNA)[24], are the most widely used in clinical settings. The goal of the SGA and MNA is to identify patients at risk for malnutrition. These tools generally do not capture the needs of the patients at student-run clinics and are not culturally adaptable.

The SGA has widespread use due to its ease of completion, inexpensiveness, non-invasiveness, and only requires a few minutes to complete at a patient's bedside by a trained health professional. The SGA is designed specifically for identifying nutritional risk and predicting clinical outcomes, such as morbidity, mortality, postoperative complications, and length of hospital stay.[25] The MNA24 is another validated, comprehensive, and commonly used nutrition screening and assessment tool appropriate for most clinical settings.[24–27]

The MNA and SGA are not appropriate nutrition assessment tools for patients at student-run clinics since they do not address the social determinants of health. The majority of patients at student-run clinics would benefit from culturally sensitive nutrition education, recommendations on management of chronic disease, and improved access to culturally appropriate food. A published and validated nutrition assessment tool or guide appropriate for use at student-run clinics was not identified in the literature search.

The Self-Assessment Nutrition Score (SANS) is a tool developed in 2018 by a student and consists of 10 statements related to general nutrition state, changes in food consumption over the last three months, mental health assessment, eating experience, changes in body weight and more.[28] Initially this tool was tested in hospital patients, but in 2021 the tool was validated against the MNA-Short Form (MNA-SF) in community clinic patients.[29]

Methods

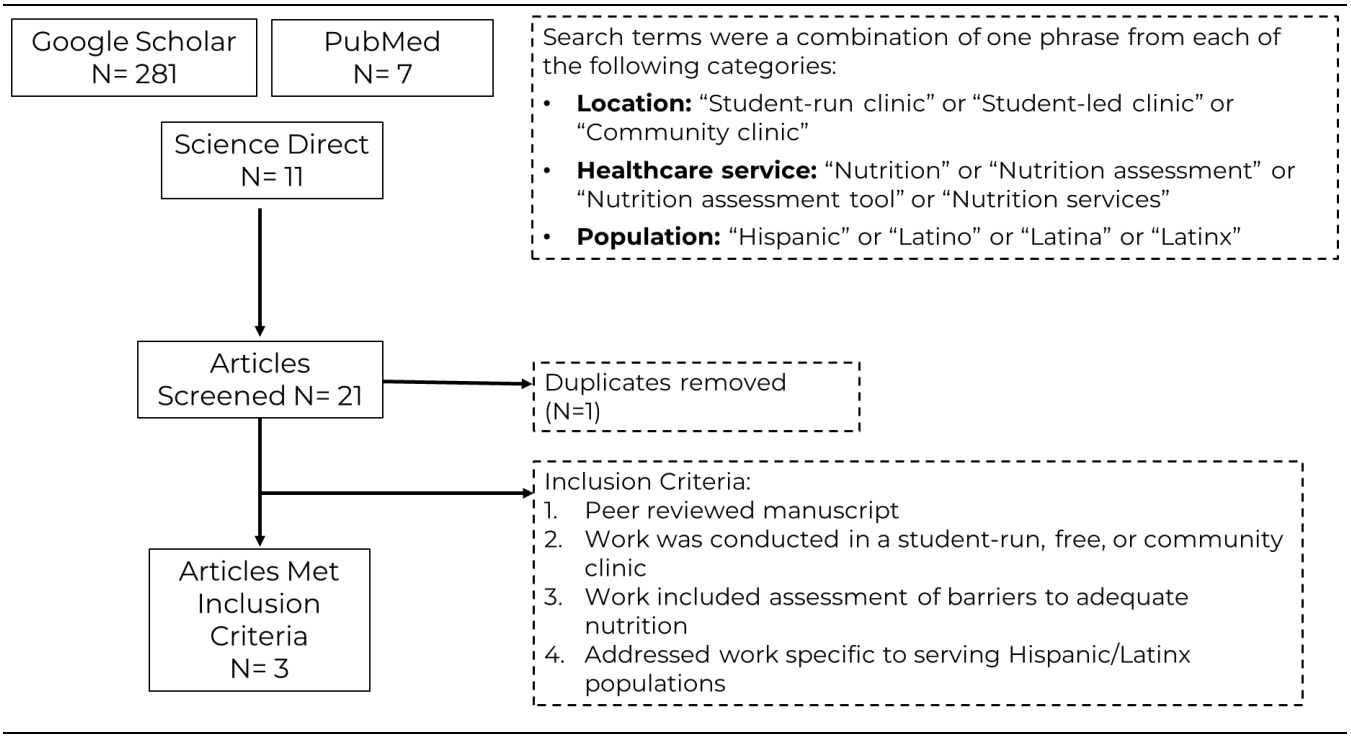
Literature Search

Between March 2020 and December 2020, PubMed, Google Scholar and Science Direct databases were searched using each of the following keywords focused on the concept of nutrition assessment in student-run clinics serving the Hispanic/Latinx population. Terms searched included: student-run clinic, student-led clinic, free clinics, community clinic, nutrition, nutrition assessment, nutrition assessment tools, Hispanic, and Latino/a/x. These terms were searched in each database in differing combinations. Figure 1 illustrates the search strategy and results obtained in our search.

Article Selection and Review

Articles generated in the literature search were reviewed by 4 independent reviewers to determine relevance to the study. Criteria for inclusion were: 1) peer-reviewed manuscript, 2) work was conducted in a student-run, free, or

Figure 1. Flow chart of the article review process for the literature review



community clinic, 3) the work included assessment of barriers to adequate nutrition, and 4) addressed work specific to serving Hispanic/Latinx populations. Reviewers read the articles and recorded key elements related to nutrition assessment noting social and cultural barriers addressed.

Results

Searching the literature yielded 3 results for nutrition assessment of the Hispanic/Latinx population in student-run, free, or community clinics. Several articles presented research on health behavioral counseling and food insecurity screening conducted by health professionals outside of nutrition and dietetics, but few studies were conducted on nutrition assessment, especially for Hispanic/Latinx populations. A summary of the 3 articles, highlighting relevant aspects for nutrition assessment, can be found in Table 1.

Three student-run free clinics in San Diego, California serve uninsured Hispanic/Latinx patients that predominantly speak Spanish. The clinics implemented screening via the 6-item USDA US Household Food Security Survey to assess the prevalence of food insecurity with 430 patients seeking care. The screening indicated that 74.0% of patients were food insecure, and 30.0% had very low food insecurity. Almost half of the patients had DM2, and those with DM2 were more likely to be food insecure.[17] To address food insecurity, clinic volunteers referred the patients to food pantries and the Supplemental Nutrition Assistance Program (SNAP), and provided monthly boxes of nutritious foods. Implementing food insecurity screening and referral programs at free clinics is useful given the prevalence of food insecurity.[17]

A student-run free clinic in Toledo, Ohio provides primary care services to low-income families lacking health insurance. Initial nutrition services were group classes that were ill-attended, and researchers aimed to carefully identify the nutrition needs of the patients to provide effective nutrition services.[15] Focus groups were used to assess food insecurity and better understand nutritional needs of the clinic's population via eight questions regarding food insecurity and dietary patterns. Participants also ranked factors influencing food purchasing decisions. The cost of food was found to be the primary influence on

Table 1. Summary of key findings addressing social and cultural barriers for Latinx/Hispanic patients in student-run clinics

Authors	Who conducted the nutritional intervention	Key elements for nutrition assessment	Social and culture barriers addressed or overlooked
Smith S, Malinak D, Chang J, et al[17]	Medical Students (n=112), health care trainees and providers such as faculty physicians, residents, physician assistant, social worker, social work interns, community health promoters (n= 70)	Utilized a validated 6-item USDA US Household Food Security Survey	Materials were provided in Spanish or English Addresses barriers to food access and availability with follow-up resources if food insecurity was noted A complete nutrition assessment was not provided No education or counseling regarding comorbidities was provided
Marino EB, Thuppal H, Marino C, Welch P[15]	No student involvement RD, MD, and Master Certified Health Education Specialist	Utilized focus groups to better understand food access/ availability	Addresses barriers to food access and availability Follow-up resources (posters and list of emergency food programs) were provided if food insecurity was noted Supported SNAP application A complete nutrition assessment was not provided No education or counseling regarding comorbidities was provided
Tran T-A, Yang N, Davis N, et al[30]	Medical Students	Utilized standardized script developed with Registered Dietitian inquiring about MyPlate knowledge Appropriate goal setting (1-2 goals) with patients	Materials and appointments were provided in Spanish or English A complete nutrition assessment was not provided May not be providing MyPlate examples with culturally appropriate foods Doesn't address food access or availability Doesn't provide resources to address barriers to food access

RD: Registered dietitian; MD: Doctor of medicine; USDA: United States Department of Agriculture; US: United States; SNAP: Supplemental Nutritional Assistance Program

purchasing patterns. Eating healthfully seemed out of reach due to cost, and participants were confused about which foods are considered healthful. Participants expressed a desire to know hours and locations of emergency food assistance programs and community meals. Barriers to food security were addressed by helping patients apply for SNAP and creating resources to access community meals or produce drives.[15]

In Harlem, New York a student-run clinic offers medical services to uninsured, Spanish speaking patients. The clinic aimed to deliver nutrition services to patients by educating medical students on nutrition counseling and education.[30] With the assistance of a dietitian, the clinic created a standardized script guiding medical students on assessing patient nutrition and setting attainable nutrition goals. Medical students used the MyPlate tool and goal tracking to evaluate effectiveness of individualized nutrition counseling for 58 patients. They assessed patient knowledge using MyPlate pre- and post-counseling by having patients draw a sample plate at the start and upon completion of the counseling session. Only 14.0% of patients could accurately draw the MyPlate tool with proper portion sizes and correct food groups before the counseling session compared to 65.0% post-session ($p<0.001$). Prior to the counseling session, 53.0% of the patients indicated having nutrition goals whereas following the counseling sessions, 84.0% of patients established nutrition goals. Researchers concluded that using a standardized script is effective for medical students to provide nutrition education to patients of student-run free clinics. The use of the MyPlate tool and goal tracking is a simple and

effective way to assess nutrition education and nutrition goal setting[30].

Discussion

This critical review of the literature demonstrates the paucity of research addressing the social determinants of health in nutrition services at student-run clinics serving Hispanic/Latinx populations. Research on strategic approaches to meet the demonstrable need for culturally sensitive comprehensive nutrition services that adequately address health inequities are necessary for training students in nutrition professions. The limited findings suggest that the nutrition services provided at student-run clinics are primarily conducted by non-nutrition/dietetics students and do not involve comprehensive nutrition assessment.

Nutrition Assessment in Student-Run Clinics

Smith et al. assessed patients of the student-run clinic for food insecurity, but did not conduct complete nutrition assessments.[17] Nonetheless, it is relevant to the purpose of this review in that it examined nutrition services at student-run clinics. The implemented food insecurity screening and referral system was relatively simple and could be conducted by any health professional. Access to food is an essential upstream factor that impacts health outcomes. Smith et al. demonstrated a feasible model for other student-run clinics to address food access as a critical social determinant of health to better meet the needs of the patients.[17] Through focus groups on nutritional needs of clinic patients, Bedell et al. discovered that cost of food was the biggest perceived barrier to healthful dietary patterns. As a result, their services were modified to improve food access.[15] Together, these two studies clearly demonstrate the importance of screening for and addressing food insecurity and food access through nutrition services at student-run clinics.

Nutrition services go well beyond addressing food insecurity. The Harlem clinic demonstrated a method for providing nutrition services by medical students to deliver general education and encourage nutrition goal setting. While the Harlem clinic went past addressing food access by providing nutrition education, it was not tailored to each patient.[30] General nutrition education can be extraordinarily beneficial, however meeting individual patient needs by addressing specific life circumstances requires a more individualized assessment to assist patients in achieving their goals. Since, the Harlem clinic has worked to identify a plan of action for patients that indicate they are food insecure to tailor a plan that meets their needs.[31] The aforementioned studies show that each student-run clinic provides valuable insight into addressing social determinants of health in nutrition assessment that patients may face. Many free community clinics and student-run clinics likely address nutritional needs in several ways but often do not publish this information. Thus, complicating efforts to gather comprehensive material on nutrition services.

Suggestions for Nutrition Assessment in Student-Run Clinics

Nutrition is critical for positive health outcomes, and nutrition services should be included at student-run and free community health clinics. One way to achieve this is to seek out an opportunity to include dietetics students into the clinic to provide nutrition assessments. Other clinics have consulted with part-time Registered Dietitians to provide 1-on-1 nutrition education.[15] If the aforementioned options are not plausible, implementing screening for social determinants of health such as food insecurity is crucial to addressing barriers to chronic disease management.

Our recommendations for nutrition services at student-run clinics are three-pronged: 1) nutrition services should be conducted based on the framework of the Nutrition Care Process, 2) nutrition services should be tailored specifically to the population that is served at the clinic, and 3) once implemented, nutrition services should be assessed to determine whether the services are appropriate for the population. We tailored our nutrition services with a specific emphasis on assessment by researching the food-related cultural beliefs, values, and behaviors of the Hispanic/Latinx population. We also familiarized ourselves with foods that Hispanic/Latinx individuals commonly eat, made sure that our resources were available in both Spanish and English, and

learned about common health and nutrition barriers that are faced by our patient population. To determine whether a nutrition assessment tool is appropriately tailored for the patient population of interest, we recommend that the following questions are asked: 1) does the nutrition assessment address barriers commonly encountered by the patient population? 2) if the assessment is conducted through an interpreter, has the assessment tool been back-translated to make sure the questions are non-threatening and not offensive? 3) if the assessment is cross-cultural, has the health professional conducting the assessment been adequately trained on cultural competence?

If nutrition services are already implemented, a guided nutrition assessment tool for use by students to effectively assess patients would be impactful. Such a tool provides prompts for gathering pertinent information and is most effective if it allows for cultural tailoring and clinical judgment to best meet the patient's individual needs. While this review was specific to the Hispanic/Latinx population, cultural tailoring of nutrition assessment is necessary to provide effective, holistic care to other populations served at student-run clinics.

The study that tested the SANS tool against the MNA-SF also examined the impact of culture on the correlation between the two tools and found that assessment of community clinic patients from one culture (Arab Israelis) yielded better correlation between the two tools compared to assessment of patients from another culture (Jewish Israelis).[29] The authors concluded that this finding emphasizes the importance of addressing cultural aspects when performing a clinical assessment.

A limitation of this study is that a scoping review was not conducted. However, for the specific population of interest, the research team focused on appropriate articles that closely related to the topic. Ultimately, understanding the patient population that is being served is critical to be able to address health inequities facing patients of student-run and free community clinics. Hence it is recommended that students and preceptors become familiar with cultural and social circumstances of patients. These cultural and social circumstances impact patient health outcomes and need to be addressed. This can be done through effective nutrition assessment and subsequent interventions.

Conclusion

Limited information exists about nutrition services at student-run clinics. The SGA and MNA have widespread use in nutrition assessment; however, these tools are insufficient for the distinctive characteristics of Hispanic/Latinx populations served. Despite the narrow scope of this research, findings suggest a need to generate, implement, and validate the use of a culturally sensitive, guided nutrition assessment tool to guide student providers in student-run clinics. Finally, additional research is needed to determine best practices for nutrition assessment and services for the Hispanic/Latinx population in a student-run clinic.

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Disclosures

The authors have no conflicts of interest to disclose.

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