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Using an online learning module to teach nursing students about food insecurity as a social determinant of health

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ABSTRACT

Currently, food insecurity is a lack of access to enough food for a healthy life that impacts approximately 40 million Americans and 821 million people worldwide. These statistics are expected to rise as a result of the COVID-19 pandemic drastically. Studies show that healthcare and nursing curricula are currently deficient in providing education to help healthcare providers combat food security and provide patient education. The purpose of this article is to discuss a curricular framework that can be implemented in both nursing and healthcare curricula to offer appropriate training for food insecurity assessment, care, and patient education.

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Introduction and background

Several key healthcare organizations, such as the Centers for Disease Control (CDC), [World Health Organization \(WHO\)](#) and [Healthy People 2020](#), have advocated for community assessment of the social determinants of health (SDOH) by healthcare practitioners. Leaders in medical education have recommended that SDOH should be an essential part of the medical education curriculum ([Mangold, Bartell, Doobay-Persaud, Adler, & Sheehan, 2019](#)). In nursing specifically, the National League for Nursing presented a call in 2019 for the integration of the SDOH into nursing education curricula ([NLN, 2019](#)). With approximately 2.9 million nurses currently employed within the US, the role of nurses in addressing health equity and SDOH must be strengthened and has the ability to make a significant societal impact on population health ([Thornton & Peraud, 2018](#)). Due to the ever-growing need to enhance nurses' and other healthcare providers' knowledge about the SDOH, more education regarding screening tools for assessment and inter-collaborative care for the SDOH are necessary to integrate within nursing and healthcare education ([Andermann, 2018](#)).

The purpose of this article is to describe the use of three major models to aid with curriculum development, framework, and the evaluation process as a potential approach to planning online learning modules to teach nursing students about food insecurity

screening, assessment, and care. The use of the continuous improvement process (CIP) model will be described to aid with the overall curriculum development and evaluation plan. The paper will also discuss the utilization of the competency-based medical education framework and the SEARCH mnemonic. The competency-based medical education framework and SEARCH mnemonic help to promote evidence-based learning guidelines into the curriculum using online learning modules to teach nursing students about food insecurity screening, assessment, and care as it relates to the SDOH.

Social determinants of health (SDOH)

The SDOH includes five major domains that relate to conditions that people face based on, and within, their environment ([CDC, 2018](#); [ODPHP, 2020](#); [WHO, 2020](#)). The five domains include economic stability, education, health and health care, neighborhood and built environment, and social and community context. Economic stability is the SDOH related explicitly to the concept of food insecurity. Other areas related to economic stability, which also align with food insecurity, include poverty, employment, and housing instability.

A key component of SDOH education is screening for food insecurity ([Leonard, Hughes, Donegan, Santillan, & Pruitt, 2018](#)). Food insecurity, a condition where a household has limited or uncertain access to adequate food caused by lack of money or other resources, affected 11.1% of US households in 2018 ([Coleman-Jensen, Rabbitt, Gregory, & Singh, 2019](#)). Food insecurity is a strong predictor of diagnosis for many chronic diseases, including hypertension, coronary heart

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disease, and hepatitis. For many chronic diseases, food insecurity is more strongly associated than is income (Gregory & Coleman-Jensen, 2017).

Food insecurity

Food insecurity is described as a lack of “access by all people at all times to enough food for an active, healthy life—is one of several conditions necessary for a population to be healthy and well nourished” (Nord, Andrews, & Carlson, 2005, p. 2). Food insecurity affects approximately forty million Americans and complicates the lives of those with pre-existing chronic health-related conditions, such as type 2 diabetes and cardiovascular disease (American Diabetes Association, 2020; Nguyen, Shuval, Bertmann, & Yaroch, 2015; Weinfield et al., 2014). Knowles et al. (2018) found via a grounded theory, qualitative analysis, that several facilitators and barriers exist regarding appropriate food insecurity screening among healthcare providers. The reported facilitators included patient trust, choice of screening methods, and assisting with navigating government benefit application centers. The reported barriers to food insecurity screening included complex administration of screening and referral, stigma and privacy concerns, poor communication about the referral process, and patients being enrolled or ineligible for benefits. Based on these research points, nursing educators need to include education in the curricula for students regarding the complexity of food insecurity screening, assessment, the value of communication, and understanding the multifaceted referral process for appropriate resources.

Planning and curriculum development

To begin the curriculum planning and development phase, nurse educators should include experts in content, curriculum development, and instructional design. Appropriate allocation of human expertise in these fields will allow a broad development of the curriculum that will take into account strategic planning and management (Khan & Law, 2015). One method which could be utilized for the

planning and curriculum development process is the CIP model (Park, Hironaka, Carver, & Nordstrum, 2013). The CIP model utilizes five main points when planning for any action plan: (1) determine goals, (2) assess institutional rules, roles, and tools, (3) develop an action plan, (4) implement the plan, (5) measure and evaluate (Fig. 1). When determining goals within healthcare education, one of the first steps includes the creation of learning objectives. Learning objectives are the foundation of the educational module and identify the measurable goals that the students should achieve from the learning experience. In the present instance of developing food insecurity online learning modules, the following learning objectives could be incorporated or revised into any nursing curriculum:

- a. Analyze a food insecurity assessment tool and recognize appropriate resources such as SNAP and WIC, etc. to assist with food insecurity.
- b. Review basic principles of nutrition to manage type 2 diabetes while considering culture and personal food preferences in recommendations.
- c. Identify resources and strategies to access foods in grocery stores that support healthy eating patterns for the client(s).
- d. Recognize collaboration need with appropriate interdisciplinary healthcare providers, community-based resources and other social services to implement holistic care for the needs of families.
- e. Review and assess written dialog with patients about quick, easy, healthy menu planning and food preparation.
- f. Recognize the difference between a food bank, food pantry, and a soup kitchen.
- g. Reflect on their readiness to support the health of food insecure individuals at risk for type 2 diabetes and other chronic diseases.
- h. Identify their intention to include food insecurity assessment related to their practice in their clinical, academic, and/or scientific careers.

Nurse educators who are considering the development and implementation of a food insecurity curriculum need to assess the

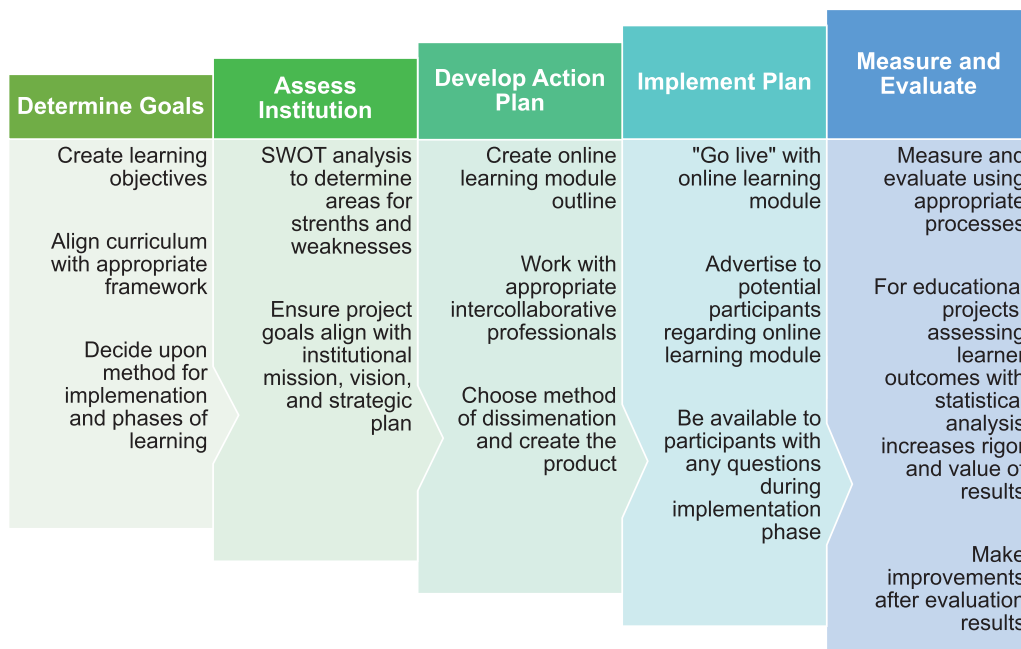


Fig. 1. Continuous improvement process (CIP) model in healthcare education (Park et al., 2013).

institution of implementation for strengths, weaknesses, opportunities, and threats (SWOT). The use of a SWOT analysis will allow nurse educators to determine the institutional support, need, benefit, and challenges to implementing the project. Additionally, the topic and curriculum can be strengthened by ensuring alignment to the institution's vision, mission, and strategic plan. If the nurse educators plan to gather pre and post-test data for analysis and dissemination, IRB exemption should be obtained from the institution before project implementation.

Framework

The online learning modules could be based on the competency-based medical education framework, which emphasizes (1) education must take into account patients' health needs and (2) preparation of health care professionals should blend classroom education and professional practice (Carraccio et al., 2016; Frank et al., 2010). The use of the competency-based medical education framework is a suitable framework for curricular development of online learning modules covering food insecurity as an SDOH for several reasons. A competency-based medical education framework allows for a consistent approach to curriculum development and design. Consistency is vital because nursing educators strive for students to receive the same or similar learning experiences and develop consistent practices regarding food insecurity screening and assessment. Second, the use of the competency-based medical education framework allows curriculum developers and experts to ensure the learning experience is authentic, in that students will learn knowledge and information that is genuinely applicable to real-life, clinical scenarios. Lastly, a competency-based medical education framework supports the alignment of the learning experience to the identified student learning objectives "through the continuum of medical education" (Harris, Snell, Talbot, & Harden, 2010, p. 649).

During the development of the online module, the faculty developers should also incorporate assistance from other expert faculty in the field of culinary medicine, population health, and online education if available. Students and providers have multiple opportunities to assess food insecurity and provide education for nutrition and community resources for access to healthy foods. Therefore, the use of online learning modules can enhance the ability of nursing students to conduct a food insecurity assessment, assess and analyze the results of the assessment, and determine what collaborative efforts are needed to pull in other healthcare providers for the purpose of providing holistic care to an individual patient. Additionally, nurse educators should consider implementing patient teaching and education into the curriculum. Patient education can focus on interviewing practices to establish rapport and trust. The curriculum should educate the nursing student about how to conduct some basic nutrition counseling surrounding a patient and their family while considering culture and family preferences in modifying diet. The curricular project should utilize the SEARCH mnemonic of steps that health care professionals can take to address food insecurity, SDOH, and disease:

Screen each patient for food insecurity.

Educate patients at risk for food insecurity about relevant coping strategies.

Adjust medications that should be taken with food.

Recognize that food insecurity is recurrent but not always chronic for many patients.

Connect, normalize, and facilitate patient enrollment in federal and community resources.

Help other health care professionals understand that food insecurity and poor health often intensify one another.

The online learning module should utilize three major phases for learning: screening for food insecurity, appropriate communication and care, and managing referrals for resources. Nurse educators should consider the best modalities for the dissemination of the curriculum during the implementation phase. The institutional learning management system may be the best platform for dissemination, but each institution will require individualized planning. The use of the institutional learning management system, if available, could facilitate program evaluation because the grade book can store the pre and post-test grades. The evaluation scores can be easily exported into a spreadsheet, de-identified, and placed as data into the statistical codebook for use in program evaluation data analyses.

Nurse educators should also work with experts in tool and testing creation to design a pre/post-test. A pre/post-test design can measure student knowledge before and after the online learning module for quasi-experimental data analysis, especially if randomization is not possible. The evaluation phase should provide a comparison of data before and after participation in the online learning modules. The goal of using this format for curriculum development should be to evaluate student learning through measurable means (pre/post-test scores), revise the curriculum based on the evaluation results, and re-administer the online learning modules to new students (Fig. 1).

Conclusion

Research is apparent and evident that nursing and healthcare curricula are currently deficient in advancing student knowledge of the SDOH and specifically deficient regarding the training of food insecurity screening, assessment, and referral to resources (Mangold et al., 2019). Research also shows the value of online learning and curriculum development, utilizing validated models and frameworks (Nguyen, 2015). The use of a validated framework for education, a model for curriculum innovation, and interprofessional experts can aid educational institutions with the integration of appropriate learning resources and modules for nursing students to learn the proper screening, care, and impact of food insecurity as an SDOH. Additionally, a curriculum that connects the SDOH to food insecurity and teaches appropriate assessment and care can help institutions meet a long term goal of fostering the quadruple aim and better training nursing students in the concepts of the SDOH.

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This project has a completed grant proposal, but no submissions due to COVID-19 [2020].

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