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Pilot Program to Assess and Address Food Insecurity at a Student-Run Free Clinic in Southeastern Virginia

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Abstract

Food insecurity (FI) has numerous adverse effects on health. Patients who attend student-run free clinics (SRFC) are at high risk for FI, but screenings and interventions are rare. This project measured FI and resource utilization among patients at a SRFC and piloted an intervention. We collected data from patients (N=139, 93% response rate) via 17-item self-report survey from which we generated a tailored resource booklet, and called patients after 5 weeks to assess resource utilization. Seventy-four percent of patients had FI, yet only 40% reported using any type of food assistance resource in the past 12 months. Chi-square analyses found significant differences between patients based on language-preference and FI status. Initial interest in the resource booklet was high, but on follow up (N=57, 69% response rate) booklet utilization was low due to logistical barriers, confusion, and problems accessing the resources. Our results demonstrate that patients experience FI in tandem with barriers to resource access and other social needs.

Keywords

Food insecurity, social determinants of health, student-run free clinic, under-resourced patient population, community health, food assistance resources

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Pilot Program to Assess and Address Food Insecurity at a Student-Run Free Clinic in Southeastern Virginia

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Abstract

Food insecurity (FI) has numerous adverse effects on health. Patients who attend student-run free clinics (SRFC) are at high risk for FI, but screenings and interventions are rare. This project measured FI and resource utilization among patients at a SRFC and piloted an intervention. We collected data from patients (N=139, 93% response rate) via a 17-item self-report survey from which we generated a tailored resource booklet, and called patients after 5 weeks to assess resource utilization. Seventy-four percent of patients had FI, yet only 40% reported using any type of food assistance resource in the past 12 months. Chi-square analyses found significant differences between patients based on language-preference and FI status. Initial interest in the resource booklet was high, but on follow up (N=57, 70% response rate) booklet utilization was low due to logistical barriers, confusion, and problems accessing the resources. Our results demonstrate that patients experience FI in tandem with barriers to resource access and other social needs.

Keywords: Food insecurity, social determinants of health, student-run free clinic, under-resourced patient population, community health, food assistance resources

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Introduction

Food insecurity (FI), the unavailability of nutritionally adequate and safe foods, is a major contributor to poor health outcomes ranging from diabetes and premature mortality in adults to birth defects and cognitive problems in children (Gundersen & Ziliak, 2015; Ma et al., 2024). As a result, national health organizations recommend that healthcare settings screen patients for FI (American Diabetes Association Professional Practice Committee, 2021; Council on Community Pediatrics et al., 2015; Institute of Medicine, 2014), but this practice is not routinely done (Frazee et al., 2019).

FI can be measured quickly and reliably in clinical settings using the two-item Hunger Vital Sign questionnaire (Baker et al., 2024; Hager et al., 2010), and evidence suggests that patients are comfortable being screened for FI via electronic tablet (Cullen et al., 2019). Furthermore, studies show that clinicians believe FI should be measured and addressed in healthcare, but have perceived barriers such as lack of knowledge about community resources, time constraints, and uncertainty about how to address a positive FI screen (Barnidge et al., 2017; Frost et al., 2022).

Providing food assistance, including food delivery or food at a secondary site, has been associated with decreased food insecurity (Oronce et al., 2021). One study at a pediatric

primary care clinic in Boston offered caregivers a referral menu in which they could indicate preferences for different food assistance resources, such as locating a food pantry or applying for federal aid (Bottino et al., 2017). They found an incomplete overlap between food insecurity and referral service, with Hispanic caregivers being more likely to select referrals than their White counterparts, but with no significant difference in reported FI between the two, suggesting the importance of eliciting patient preferences when addressing social needs.

Of particular concern are the rates of FI among patients with lower incomes and those lacking health insurance (Bottino et al., 2017). Student run free clinics (SRFC), which are medical practices staffed primarily by medical students, cater to such patients; these clinics see patient populations that experience particularly high rates of FI. For example, one SRFC found that 74% of their patients experience food insecurity (Smith et al., 2016), almost 6 times the national average (Rabbitt, 2022), indicating that SRFCs should be a priority area for FI screening and intervention.

Therefore, the purpose of this project was to identify the rates of FI and food assistance utilization among patients at an SRFC in southeastern Virginia and implement a pilot intervention. Our overall aim was to collect preliminary information to inform the development of a sustainable FI screening and intervention program to ultimately improve patient care.

Methods

Clinic

Our SRFC provides free primary care and specialty services to uninsured/underinsured, homeless, and undocumented patients across the region, the majority of whom are Hispanic and monolingual Spanish-

speaking. The clinic operates one to two nights per week, serving 10-15 patients per night. During clinic, teams of volunteer student clinicians, residents, and attendings see patients that are in need of primary care, mental health care, women's health care, dermatology, ophthalmology, and orthopedic medicine.

Procedures

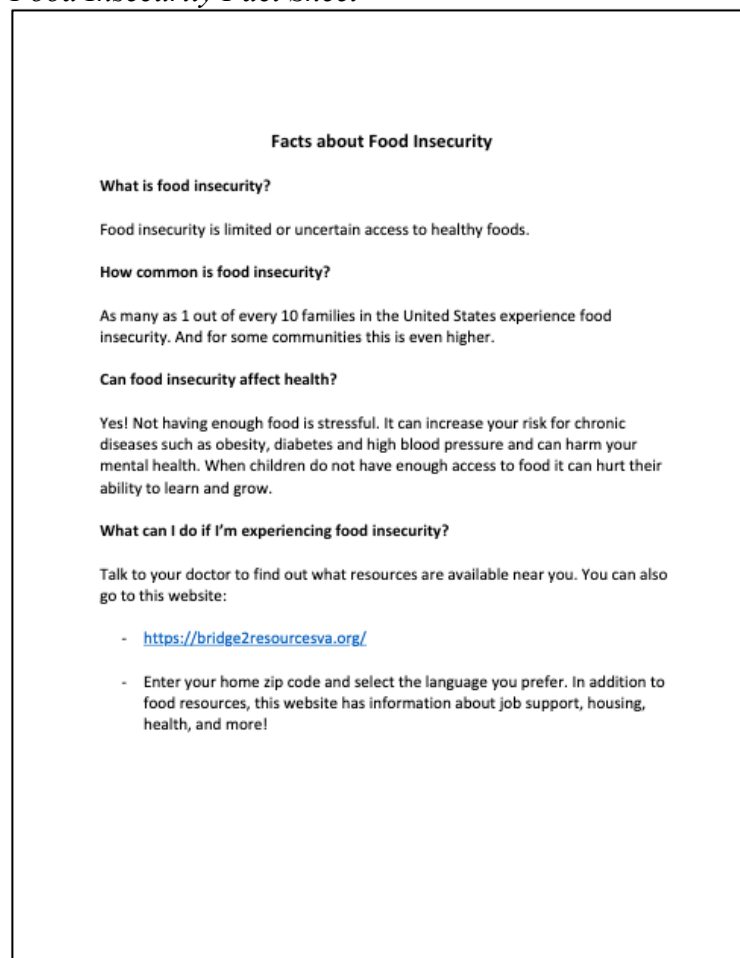
From August 2023 through December 2023, a team of student volunteers collected data from patients during clinic hours. All patients with a scheduled or walk-in appointment at the clinic were eligible to participate, with the exception of patients under the age of 18 for whom their accompanying adult was invited to participate. Following a standardized script, a volunteer bilingual in English and Spanish invited patients to fill out our survey via electronic tablet or paper while in the waiting room. Appointment companions of adult patients unable to independently fill out the survey were invited to complete it on their behalf. To address concerns regarding low literacy, volunteers offered all participants the option of being read the survey in a private room. After each patient completed the survey, the results were sent to a second volunteer who created a tailored food resource booklet based on survey responses (described below), which was handed to the patient before they left the clinic that same night. This project was deemed not human subject research by the Eastern Virginia Medical School Institutional Review Board.

Measures

The survey consisted of 17 self-report items, offered in both English and Spanish. We measured FI using the validated 2-item Hunger Vital Sign, which asked participants about not having, or worrying about not

Figure 1

Food Insecurity Fact Sheet



having, enough money for food in the past 12 months (Gattu et al., 2019; Hager et al., 2010). Response options were on a three-point scale ranging from “never true” to “often true” and patients who said “often true” or “sometimes true” to either of the two questions were categorized as experiencing FI. This tool has been deemed reliable for use in clinical settings (Cullen et al., 2019; Gottlieb et al., 2014).

The survey also asked patients about their current utilization, or use within the past 12 months, of the following food assistance resources: food pantries, the Supplemental Nutrition Assistance Program (SNAP)/food stamps, the Women, Infants,

and Children (WIC) program, soup kitchens, Meals on Wheels (MoWs), or any other food assistance program. The survey then allowed patients to indicate their interest in receiving information about these resources, which we used to create their tailored resource booklet. We also assessed their eligibility for WIC and MoWs to ensure that only those deemed eligible would receive these resources in their booklet. The questions developed by the research team were translated into Spanish by a certified translator. Finally, we asked patients to provide their phone number and permission to call with follow-up questions in five weeks. The survey took approximately

10 minutes to complete and was administered without interrupting routine clinic flow.

Tailored Resource Booklet

Patients interested in information about food assistance resources received a tailored booklet inspired by previous studies (Bottino et al., 2017; Clarke et al., 2011). A volunteer made the booklets using a free, online social needs platform (*Bridge2ResourcesVA*, n.d.). After each patient filled out their survey, the results were sent to another volunteer who entered the patient's zip code into the website and selected the desired resources indicated in the survey. If a patient indicated interest in local food pantries or soup kitchen/hot meals, the volunteer would select the 'food pantries' or 'meals' filter respectively and include the first five search results per category. If a patient indicated interest in and demonstrated eligibility for federal food assistance or food delivery services, the volunteer would include information about SNAP and WIC and/or MoWs. The website then auto-populated a handout listing the relevant resources in the patient's preferred language and the handouts were printed and compiled into a binder with a cover sheet with the patient's first name and a FI fact sheet (see Figure 1), which included a link to the *Bridge2ResourcesVA* website. Patients who indicated they were not interested in any food assistance information were given the binder with only the cover sheet and fact sheet.

Follow-Up Calls

Patients were eligible to receive a follow-up phone call if they requested information about at least one resource, provided a valid phone number, and gave permission to be called. We used a script to collect follow-up data five weeks after the initial survey administration in either English or Spanish. Modeled off of prior research, we asked

patients two close-ended questions: "Do you still have the food resource booklet we gave you in clinic?" (yes/no) and "Are you getting the help you need from the food resource booklet we gave you in the clinic?" (all/most/a little/none), and one open-ended question: "Do you have anything else you want to share with me about your experiences or thoughts using the food resource booklet?" (Clarke et al., 2011).

Data Analysis

Using SPSS version 29, we conducted descriptive statistics and chi-square tests of independence to explore group differences between patients with and without food insecurity and between patients based on language preference. To describe the feedback we received during our follow-up phone calls, we took notes on the verbal commentary that participants shared and organized their responses into categories.

Results

We surveyed patients during 25 clinic shifts. Out of 201 patients who attended these clinics, eight declined, 52 already completed the survey, and two were unable to participate due to time constraints, resulting in a final sample of 139 patients (93% response rate). As shown in Table 1, 74% of patients screened positive for FI, yet only 40% of patients reported using any type of food assistance, with the most popular assistance being a food pantry. The majority of patients (63%) requested information about at least one type of food assistance, with the most popular also being food pantries.

When exploring group comparisons, we found that the Spanish-speaking patients were significantly more likely to be experiencing food insecurity, $\chi^2 (1, N=123)=19.40$, $p<.001$, and were significantly more likely to request food

Table 1

Description of Food Insecurity, Resource Utilization and Interest in Resource Information among SRFC Patients (N=139)

	Frequency (n)	Percent (%)
Food security status		
Food insecure	103	74
Food secure	22	16
Don't know/refuse to answer	14	10
Preferred language		
English	46	33
Spanish	90	65
Refuse to answer	3	2
Prior resource utilization		
SNAP*	19	14
WIC**	8	6
Food pantry/church	42	30
Soup kitchen	9	6
Meals on Wheels	2	1
Other	2	1
None of the above	84	60
Requested resources		
Federally funded programs	45	32
Food pantries	57	41
Soup kitchens/hot meals	18	13
Food delivery	45	32
None of the above	51	37
Program eligibility		
WIC**	20	14
Meals on Wheels	5	4

*SNAP=Supplemental Nutrition Assistance Program

**WIC=Special Supplemental Nutrition Program for Women, Infants, and Children

resources, $X^2(1, N=136)=11.05, p<.001$, than English-speaking patients. However, Spanish and English-speaking patients did not significantly differ on their prior use of food resources. Patients experiencing food insecurity were significantly more likely to have used food resources in the past, $X^2(1, N=125)=4.23, p=.04$, and were significantly more likely to request food resources from us, $X^2(1, N=125)=36.26, p<.001$, compared to food secure patients.

Out of the 82 patients eligible for follow-up, 57 completed the phone survey (70% response rate). Forty-six (80%) participants were still in possession of the resource booklet, but 43 patients (75%) had not yet used the booklet, with the most common reasons being lack of time, lack of transportation, and confusion about how to use the resources (i.e., how to apply for federal assistance). Ten (17%) patients said the booklet provided them with some form of assistance (three stating they are receiving

“All the help I need”, three getting “Most of the help I need”, and four getting “A little of the help I need”). However, two patients who used the booklet to attend food pantries found that the pantry had run out of food, and three patients said they did not get any help from the booklet because they lost it, did not have interest in the resources it provided, or because they were unable to read.

Discussion

We found the FI rate at our clinic to be approximately six times the national average and similar to the rate found in other research (Smith et al., 2016; *USDA ERS - Food Security and Nutrition Assistance*, n.d.), yet food assistance utilization rates were low, highlighting the need for healthcare settings to better understand and address this issue. We also found that 20 patients were likely eligible for WIC and five were eligible for MoWs, yet none were enrolled in these programs. The discrepancies between patient need and resource utilization may be due to a variety of factors, such as lack of information about eligibility for resources and the stigma of asking for help (DePuccio et al., 2022; Fong et al., 2016). This may explain why food pantries were the most popularly requested and previously used food resource, which reflects prior research (Bottino et al., 2017). Patients may feel more comfortable obtaining food from a pantry given that pantries often request very little information of recipients, unlike enrolling in a government-sponsored program. Given that many of our patients are immigrants, some of whom may be undocumented, they may be fearful about enrolling in certain programs, especially given the socio-political climate (Pelto et al., 2020). Educating both clinicians and patients about which food assistance programs are available to undocumented non-citizens may enhance usage of such resources.

Our findings also show that our Spanish-speaking patients were more likely to be experiencing food insecurity and more likely to request resources than English-speaking patients. While we acknowledge that language preference provides an incomplete demographic picture, these findings nod to the disparate rates of FI experienced by racial and ethnic minorities, as well as immigrants (Rabbitt, 2022; Sharareh et al., 2023). Prior work has identified lack of awareness and uncertainty about programs as barriers to immigrants receiving food and social assistance, which may explain why significantly more of our Spanish-speaking patients were requesting information (Maynard et al., 2019). Unsurprisingly, patients experiencing food insecurity were more likely than food secure patients to have used food resources in the past. However, it is notable that our Spanish-speaking patients' prior use of food assistance is similar to our English-speaking patients even though the Spanish-speaking patients are experiencing higher rates of FI. This difference further highlights barriers to this population accessing the care that they need and suggests that they might benefit from targeted food assistance interventions.

Unfortunately, upon conducting follow-up calls, we found that most patients had not yet used their resource booklet due to various barriers that co-exist with other needs experienced by under-resourced populations. This important finding is reflected in other work (Cullen et al., 2020), in which patients report difficulty accessing food resources when facing competing life stressors, highlighting that FI does not occur in a vacuum. Future research working with under-resourced patient populations should measure and address other social determinants of health in conjunction with food insecurity to provide more comprehensive support.

There are several limitations to our study. First, these results are not generalizable to all healthcare settings or populations given that our patients are uninsured and majority Spanish-speaking. Second, the simplistic nature of our follow-up calls and method of documenting patient responses limits our understanding of how to better serve our patients. Future research should use more formal methods of data collection, such as focus groups, to fully capture patient perspectives. Third, because of the need to be respectful of time constraints and patient privacy, we did not collect complete demographic information about patient immigration status or ethnicity, which limits the inferences we can make with our data.

Our study demonstrated that it is feasible to incorporate a brief FI screening tool into standard practice without interrupting routine clinic flow. Implementing this practice could serve as the first step in assessing and addressing the need for FI interventions among clinic populations. However, measuring FI and providing tailored handouts is likely not enough to make substantial changes in patients' health. Future research should consider more comprehensive approaches by examining other social determinants of health in conjunction with food insecurity while also including patient perspectives when developing interventions.

Implications for Health Behavior Research

The preference for, yet challenges to, accessing food pantries in the community among our patients suggests that establishing a food pantry at our SRFC might fill an important need. This solution could ameliorate some barriers, ensure the quality and availability of food, and allow the clinic to more closely ensure patients are accessing a vital resource. Clinics interested in this

approach need to consider access to refrigeration and storage space and adequate staffing (Rudel et al., 2023). Dedicated volunteers with stable faculty oversight would be required to ensure success and sustainability. Furthermore, institutional or community partner support would be necessary to obtain food supplies and secure the equipment and space needed.

To address concerns among patients regarding eligibility for government-sponsored food assistance programs, clinics could consider partnering with social service representatives, or even students aiming to work in social services, to verify and help enroll patients in eligible programs, which has shown to be successful in other clinics (Carpenter et al., 2022).

Future directions of this work should include integrating screening and intervention protocols into routine clinic flow rather than operating as a separate entity, which has shown to be effective at other SRFCs, particularly by including follow-up as part of the electronic medical record (EMR; Smith et al., 2016). Clinics could establish a team to oversee patient FI screening and documentation in the EMR.

When serving under-resourced patient populations, it is critical that clinicians effectively identify and address FI to support the health of patients. While our results serve as the first step in characterizing FI among patients at our SRFC, future steps should continue to seek perspectives from patients, as well as clinic and community stakeholders, to develop data-informed, sustainable programs to assess and address FI as part of routine clinic care. Furthermore, health behavior scientists should consider the larger framework of patient needs when addressing barriers to care and continue developing FI interventions that best serve the unique needs of this population.

Discussion Question

Our pilot intervention providing patients with tailored information about food assistance resources was imperfect in meeting the needs of all patients due to barriers and competing priorities. What are the best approaches to addressing other social determinants of health when designing interventions to address with food insecurity?

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