Challenges and Successes with Food Resource Referrals for Food-Insecure Patients with Diabetes

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ABSTRACT

Introduction: Clinics increasingly screen patients for food insecurity, but little is known about the efficacy of referring food-insecure patients to community-based food resources.

Objective: To evaluate the implementation of a tailored community food resource referral program in a safety-net diabetes clinic.

Methods: We conducted semistructured phone interviews with food-insecure patients participating in a screening and referral program in a diabetes clinic affiliated with a safety-net hospital. In this qualitative study, we describe barriers to and facilitators of successful food resource referrals from the patient's perspective.

Results: The prevalence of food insecurity was high (60%). Provision of written and verbal information alone about community food resources resulted in low linkage rates (0%-4%), even with individually tailored referrals. Misperceptions about eligibility, fears around government program registration, inaccessibility, lack of information retention, competing priorities, an inability to cook, stigma, and a perceived sense of stability with existing food support were major barriers to use. Personnel-guided, in-clinic enrollment to a food resource facilitated a higher connection rate (31%).

Discussion: Results of this study suggest that screening for food insecurity followed by a list of food resources for those screening positive may not adequately address patient barriers to using community-based food resources. For food insecurity screening programs in the clinical setting to be effective, systems must not only distribute food resource information but also assist patients in enrollment processes.

INTRODUCTION

Food insecurity is defined as the inability to afford nutritionally adequate and safe foods.[1] In 2017, a total of 11.8% of US households were food insecure, with a higher prevalence in households with low socioeconomic status.[2] Households at high risk for food insecurity experience cycles of food scarcity, in parallel with "pay cycles" or income shocks.[3] This irregularity in food consumption intensifies anxiety over meeting daily dietary needs and results in compensatory behaviors, such as consumption of low-cost, energy-dense foods; skipping of meals when food is unavailable; and binge eating when food is available. Therefore, food-insecure households experience a reduction in the quantity and nutritional quality of food intake. Partly as a result, the risk of diabetes in the US is about 50% higher in food-insecure vs food-secure households.[4] For people living with diabetes, food insecurity can significantly increase the risk of hyperglycemic and hypoglycemic episodes,[5-7] lower self-efficacy,[4,8] and reduce financial capacity to make important food and health choices.[9]

Recognizing the challenges that food insecurity poses to diabetes control, the American Diabetes Association in its 2016 Standards of Medical Care in Diabetes recommended for the first time that clinicians screen for and respond to food insecurity by linking patients with community food resources.[10] Given the critical role of food in improving health outcomes as well as preventing and reducing chronic diseases,[5] clinics across the country have begun addressing issues related to food access. Recent feasibility studies, primarily in pediatric clinics, have shown that food insecurity screening and referral programs can be successfully implemented in clinics serving low-income, vulnerable populations.[11-17] A systematic review of food insecurity screening programs demonstrates the range of strategies adopted by clinics to connect patients with food resources and the need to build evidence for the efficacy of these referrals as a clinical response for patients who screen positive for food insecurity.

We conducted a study to evaluate the outcomes of a tailored food resource referral program in a safety-net diabetes clinic, with a qualitative analysis focused on identifying barriers to and facilitators of successful food resource referrals from the patient's perspective.

METHODS

Food Insecurity Screening and Resource Referrals

This study was conducted at the Zuckerberg San Francisco General Hospital Diabetes Clinic, a referral site for a network of primary care safety-net clinics in San Francisco, CA. As a component of usual care, 3 trained volunteers screened all patients presenting to the diabetes clinic between November 2014 and November 2015 for food insecurity using the validated Hunger Vital Sign food insecurity screening tool.[18] The 2-item screen is widely recommended for clinical screening programs, having demonstrated acceptable sensitivity and specificity in high-risk populations.[19] Patients were read the following 2 statements and asked to respond with "often true," "sometimes true," or "never true" as each statement applied to them within the past 12 months: 1) "We worried whether our food would run out before we got money to buy more," and 2) "The food we bought just didn't last, and we didn't have money to get more."

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In accordance with standard practice, a response of "often true" or "sometimes true" to at least 1 of the 2 statements was considered a positive screen.[18]

For patients who were food insecure, volunteers assessed eligibility for specific food resources by collecting information on participant age, zip code, housing status, current benefits, household income, current use of food resources (to prevent unnecessary duplicate referrals), and preferences related to food, cooking, and transportation. Patients were then offered individually tailored, written and verbal information about community food resources, including (as appropriate for the patient) the Supplemental Nutrition Assistance Program (SNAP) and programs offering free groceries, on-site prepared meals (congregate meal sites and free dining rooms, often called "soup kitchens"), and home-delivered meals. At this time, all patients potentially eligible for Project Open Hand, a community-based organization providing medically tailored meals specifically for patients with diabetes, were also offered (and subsequently provided) in-clinic assistance with enrollment into the program.

Interview Procedures

From June 2015 through August 2015, all English- and Spanish-speaking patients were approached and separately asked for consent for participation in a 20- to 30-minute follow-up phone interview (with optional audio recording) to be conducted 1 to 4 weeks after the referral. Patients were informed that they would be asked questions regarding their resource referrals. Recruitment and enrollment into the study were done immediately after the food insecurity screening and referral process in the clinic.

At the time of the interview, participants had not received any other communication regarding the food resource referrals they had received in the clinic. Participants were first asked whether they were able to follow-up with any resources. If their response was "yes," the question was followed by probes designed to understand the quality of their experience and the benefits of the food program. For example, participants were asked, "Can you walk me through your experience with this particular food resource?," "What has been most helpful about this resource?," and "Can you tell me about any problems you faced contacting or using this resource?" A response of "no" was followed with probes directed at understanding barriers to resource use. Sample questions included "Can you tell me why you have not connected with the resource?" and "Would you consider using any of the food resources we talked about in the future? Why or why not?"

All interviews with Spanish-speaking patients were conducted with a qualified professional interpreter. Study procedures were reviewed and approved by the Committee on Human Research at the University of California, San Francisco. Patients were not compensated for participating in the study.

Data Analysis

We used statistical software (Stata Version 12, StataCorp, College Station, TX) to summarize demographic data and current use of food resources. We analyzed qualitative interviews using the Framework Analysis method,[20] adapted for the purposes of our study. The Framework Analysis method identifies themes through an iterative coding process and charting of responses into categories that can be used to identify relationships within the data. One author (SM) transcribed and coded a subset of 11 interviews using an open coding process. The codes were reviewed by 2 other authors (EM and AF), and any disagreements were resolved by discussion. From those interviews, we recognized that patient responses could be consistently grouped into specific categories and began the charting process. We added responses from new interviews to the categories and subsequently reviewed and refined the categories to reflect major concepts across all interviews. We then compared responses in each of the major categories to identify themes and subthemes that emerged. In the Results section, we present themes that were associated with barriers and facilitators to the use of food resources.

RESULTS

Among 240 patients who were screened from November 2014 to November 2015, a total of 143 (60%) were food insecure. Demographics are shown in Table 1. More than one-third of food-insecure patients (37%) were using at least 1 food resource at the time of the screening, and nearly 10% were homeless. More than 80% had access to some cooking facilities.

Table 1. Characteristics of food-insecure patients at diabetes clinic		
Characteristic	**All food-insecure patients (N = 143)**	**Interviewed patients (n = 31)**
Sex, no. (%)		
Women	61 (43)	12 (39)
Men	82 (57)	19 (61)
Age, mean (standard deviation)	53.4 (11)	50.2 (9)
Primary language, no. (%)		
English	71 (50)	23 (74)[a]
Spanish	55 (38)	8 (26)[a]
Other	17 (12)	0 (0)
Housing status, no. (%)		
Housed with cooking facilities	90 (83)[b]	26 (84)
Single room occupancy	7 (6)[b]	1 (3)
Housed without cooking facilities	2 (2)[b]	1 (3)
Homeless	10 (9)[b]	3 (10)
Patients using at least 1 food resource at time of screening, no. (%)	53 (37)	13 (42)
Food resources used at time of screening, no. (%)[c]		
Food stamps	21 (15)	4 (13)
Free groceries (eg, food pantries)	21 (15)	5 (16)
Free meals (eg, soup kitchens)	15 (10)	6 (19)
Home-delivered meals	8 (6)	2 (7)

[a] Difference is statistically significant (p < 0.05).
[b] n = 109. This question was added after a few weeks of screening as we learned the importance of cooking facilities, storage, etc, in making the referrals.
[c] More than 1 response was allowed.

Table 2. Use of food resources after resource referrals (n = 31)		
Type of food resource referred	No. of times referred	No. of times used after referral (%)
Food stamps	9	0 (0)
Free groceries		
Food pantries	21	0 (0)
Free farm stand	27	1 (4)
Free meals (eg, soup kitchens)	17	0 (0)
Home-delivered meals	1	0 (0)
Project Open Hand		9 (31)
Free groceries	29	3 (10)
Free meals		0 (0)
Home-delivered meals		6 (21)

Among these 240 patients, 40 English- or Spanish-speaking patients consented to be interviewed, and 31 were successfully reached for an interview. Among those who were not able to be interviewed, 6 patients were unavailable despite multiple attempts, 2 had a disconnected phone number, and 1 was hospitalized. Among the 31 remaining participants, 104 specific referrals were made to food resource programs (Table 2). Ten participants reported that they had successfully connected to food resources: 1 with a program providing free groceries and 9 with Project Open Hand. Project Open Hand offered several potential services, including home-delivered meals, home-delivered groceries, and a grocery pickup. Among patients who connected with Project Open Hand, 3 patients chose to pick up free groceries and 6 opted for home-delivered meals. There were no significant demographic differences between those who connected with Project Open Hand and those who did not.

Most patients had not accessed food resources a month after receiving in-clinic referrals. Patients identified barriers to connecting with food resources that highlighted the importance of immigration status, resource accessibility, information retention, competing priorities, cooking/storage ability, stigma, and a perceived sense of stability. However, successful linkage with Project Open Hand revealed that program enrollment guided by clinic staff and the high accessibility of program services had a noticeable positive impact on the outcome of referrals. Table 3 presents a quantified analysis of the themes.

Barriers to Food Resource Use
Perceived Ineligibility

Fear of possible immigration or legal repercussions emerged as an important barrier to connecting with a food resource. Follow-up interviews revealed discomfort with in-clinic discussion of specific eligibility requirements, such as documentation of income and immigration status. One patient said:

I'm worried because the truth is that I don't have documentation of my income because I don't work for a company. I work for a family, and they pay me in cash. [translated from Spanish]

Some patients believed utilization of community-based food resources would jeopardize their SNAP benefits or immigration processes and thus made no attempt to connect with resources.

My husband was in the process of [becoming a] resident, and I was worried that if you get some government help, they would deny or something like that.

Inaccessibility

The most frequently cited barrier to connection with food resources was inaccessibility. Participants noted a lack of transportation to intake appointments, conflicting work schedules,

Table 3. Themes and quotes from interviews		
Theme	Percentage of all patients[a]	Illustrative quote
Barriers to connecting with food resource after referral		
Perceived ineligibility	5	"I'm worried because the truth is that I don't have documentation of my income because I don't work for a company. I work for a family, and they pay me in cash." [translated from Spanish]
Inaccessibility (ie, location, hours of operation, long wait times in line)	45	"[I]t depends how far and where the place is. Because I take the bus. I don't drive. That's the only problem. I shop myself. I take the bus."
Lack of information retention	35	"I just didn't remember."
Competing priorities (ie, employment, housing)	39	"You know, it's not on my agenda. I've been so busy looking for work, so I have other things to do. … But I'd like to."
Inability to cook	10	"In my room, no [I don't have a place to cook]." [translated from Spanish]
Stigma	10	"Well, I was getting a little self-conscious about … standing in line to get food or anything like that. So I haven't really done anything."
Perceived stability	29	"I tend to spend more of my energy trying to do something productive than trying to seek out options for food sources when I already have a few that should be working pretty well."
Facilitators to connecting with food resource after referral		
Facilitated enrollment	40	"[H]ere's the chance that I got, you know, just really write the application and then someone called me. And then [they] were here with the food. … It's amazing!"
Accessibility (ie, location, delivery options, no queuing)	50	"It's just convenient. [B]ecause otherwise I get into the habit of getting what I can get quickly and it's not what I should be eating at the time. … Just not having to worry about, you know, if I'm having dinner at 6 or at 9 or if I'm even having dinner at all helps me, you know, with my diabetes in terms of what medicines I have to take or not take."

[a] For facilitators, numbers are percentage of all patients who connected with a food resource (n = 10).

long wait times, and an inability to travel alone as a result of physical disabilities.

> *If you're working and you're poor, you don't have time to go get in line. If you're unemployed, … you have time for that. Usually, I'm working.*

Lack of Information Retention

More than one-third of participants (35%) explicitly stated that they did not remember receiving a food resource referral. However, an interview prompt was often sufficient to trigger the memory of previously received referrals.

Competing Priorities

For several patients, other priorities (employment, housing, etc) took precedence over finding food support. For example, one patient recently released from prison prioritized his need for housing and safety.

> *The problem I'm having right now is I don't actually have a residence. … All my medication is in the trunk of my car. … It's really been a struggle. Not because of what I've been eating but because I don't actually have a place to put things in a drawer.*

Inability to Cook

Some patients noted that the lack of safe or clean cooking facilities and/or storage facilities limited their ability to take advantage of free grocery programs.

Stigma

Patients reported feeling stigmatized by use of food resources historically associated with poverty, particularly those requiring queuing in long lines, such as free meal programs.

> *In society, when they see you, … they discriminate [against] you when you're homeless. When they see you make the line, they don't just think that you're homeless and don't have money. They just think that you're something bad.*

Perceived Stability

Despite screening positive for food insecurity, a few patients expressed contentment with existing food support from family, friends, and/or community food resources.

Facilitators to Food Resource Use

Active Enrollment in the Clinical Setting

One of the most frequently cited factors that helped connect patients with food resources was an active enrollment process, which removed the burden of enrollment from the patient. Patients explicitly stated that the opportunity to have clinic volunteers initiate the enrollment process in-clinic (as was the case for Project Open Hand but none of the other food resources) served as a primary reason they connected with a program. Follow-up phone calls from Project Open Hand staff to set up an intake appointment also supported connection. Staff called multiple times if the patient could not readily be reached by phone.

> *[H]ere's the chance that I got, you know, just really write the application, and then someone called me. And then [they] were here with the food. … It's amazing!*

Accessibility

Convenience and ease of use also emerged as major facilitators to food resource use. For example, patients were more likely to use resources that offered a delivery option or were in their neighborhood.

> *You know that anyway they [food resources] need to [know] my address because sometimes, I'm too sick to walk. Sometimes, I don't feel so good. … Sometimes, I get so tired, I can't walk too much.*

DISCUSSION

In this study of patients with diabetes identified as experiencing food insecurity, the provision of individually tailored food resource information, as currently recommended by the American Diabetes Association,[10] was largely ineffective in improving food access. Barriers to connecting with food resources included concerns regarding immigration status, lack of information retention, inaccessibility, lack of cooking facilities, competing priorities, social stigma, and perceived stability with existing food support. This study has important implications because findings suggest that simply screening and providing a list of food resources may not successfully support food security. However, the results show that patients assisted with enrollment into a food program while in the clinic were able to increase their access to food.

As evidence supporting feasibility of food insecurity screening and referral programs strengthens, the need to assess the success of these interventions becomes imperative. Knowles et al[15] recently showed that in a pediatric clinic, clinicians were highly receptive to in-clinic screening for food insecurity. However, passive referrals that were not tailored to patient needs and preferences led to low linkage rates. Smith et al[14] reported on successful implementation and feasibility of food insecurity screening and resource referral for adult patients in student-run free clinics. This referral program included data on patients with diabetes, and, although the rate of successful connection with food resources was not quantified, it was noted that connection with offsite resources was low in comparison to the onsite food distribution available at the clinic. This is consistent with the findings of our study.

At the Zuckerberg San Francisco General Hospital Diabetes Clinic, a safety-net diabetes clinic, the prevalence of food insecurity was extremely high (60%) and consistent with rates noted in other safety net clinical settings.[14,21] Food-insecure patients who successfully connected with a food resource did so almost exclusively with a single program, Project Open Hand, which involved active enrollment facilitated by staff in the clinic. When asked why they used Project Open Hand, patients discussed the ease of submitting an application. Those enrolled in Project Open Hand chose to use both the home-delivered meals and free grocery pickup programs, suggesting that active enrollment and not home delivery alone were key to the success of this resource. Completing the application in the clinic helped bypass and problem-solve many identified barriers, including information retention, misperceptions about eligibility criteria, and accessibility. The in-clinic process also may have alleviated patient stress around navigating a new system, serving as an important facilitating factor because of the anxiety and decreased cognitive bandwidth often experienced by food-insecure individuals.[9,22,23] Additionally, Project Open

Hand's multiple attempts at scheduling appointments increased its accessibility. Finally, as a result of the clinic-assisted referrals, clinic staff were able to follow-up on patient enrollment status.

This study underscores the difficulty of successfully improving food access for food-insecure patients through referrals to community-based federal and local food assistance programs as recommended by current guidelines.[10,24] Competing priorities, inaccessibility, a lack of cooking facilities, and social stigma were major barriers to connecting with food resources. Concerns related to immigration status and the impact of applying for and/or receiving food resources were also evident. These barriers involve much broader socioeconomic, cultural, and political factors that were not addressed by our intervention but may be critical factors in confronting food insecurity and highlight the need to be patient-centered in designing successful intervention programs.

This study has several limitations. The interview sample was small and limited to English- and Spanish-speaking patients receiving care with phone access at a specialty safety-net clinic and therefore is not generalizable to all patient populations. Because of language limitations, we oversampled English-speaking patients. However, we believe the themes identified are broad enough to reflect important factors that influence successful uptake of food resource referrals among low-income populations served by the clinic. Furthermore, 88% of the clinic's food-insecure patients were Spanish- or English-speaking, suggesting that the study's interview sample highlights themes that are critical for a majority of the clinic's patient population. Our small sample size also precludes quantitative analysis between the demographics of patients who connected with Project Open Hand and those who did not. However, understanding these differences is critical to implementing effective referral programs and should be explored in future research. Finally, responses to the qualitative interview questions may have been subject to social desirability bias.

CONCLUSION

Access to healthy food is critical to achieving optimal diabetes outcomes. Effective in-clinic food resource referral processes are urgently needed given the clear importance of food security in achieving optimal diabetes outcomes[9,21,25] and the increasing emphasis on screening for food insecurity in high-risk clinical settings.[10-12,14] The marked failure of simple written and verbal provision of resources—even when tailored for eligibility and location—and the success of clinic-assisted enrollment processes highlight the need to build community-clinic linkages that support enrollment assistance, information sharing, and communication between clinics serving high-risk populations and community-based food programs. These systems-level changes can be critical to addressing food insecurity in the safety net setting. ❖

Disclosure Statement
The author(s) have no conflicts of interest to disclose.

Author Contributions
Sanjana Marpadga, MSc, contributed to the study design, collected the data, analyzed the data, and wrote the manuscript. At the time the data were collected, Sanjana Marpadga, MSc, was a student in the Master of Science in Global Health Sciences program at the University of California, San Francisco. Elizabeth J Murphy, MD, DPhil, and Alicia Fernandez, MD, contributed to the project design and data analysis and reviewed and edited the manuscript. Hilary Seligman, MD, MAS, contributed to study design and reviewed and edited the manuscript. Jamie Leung assisted with study design and patient enrollment and reviewed the manuscript. Audrey Tang, NP, collected data, assisted with study design, and reviewed the manuscript.

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Diet and Regimen

The longer I live the less confidence I have in drugs and the greater is my confidence in the regulation and administration of diet and regimen.

— John Redman Coxe, MD, 1773-1864, American physician, medical educator, and writer