Food Insecurity and Food Pantry Utilization at the UCSD Student-Run Free Clinics

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Abstract:

In a recent study, 74% of 430 UCSD Student-Run Free Clinic (UCSDSRFC) patients were food insecure using the 6-item USDA food insecurity screening questionnaire. 30% of the 430 had "very low food security".[16] Since the publication of this study, a robust Food Rx program has been instituted. All patients now receive a "food prescription" consisting of two 5-10 lb bags of healthy food at clinic. Additionally, food insecure patients at UCSDSRFC are often referred to food pantries. At most clinics where a Food Rx program has not or cannot be implemented, referrals to food pantries are one of few interventions available for food insecure patients. However, there is little research that addresses who is most interested in going to a food pantry and if referred patients actually go.

This survey study includes 292 patients surveyed during a 3-month period. This survey included the 6-item USDA food insecurity-screening questionnaire and additional questions about food pantry utilization. 31.8% (84/264) patients reported previously going to a food pantry. The most common concerns about food pantry use were transportation and fear of being asked about documentation status. The survey results suggest that there is a weak but statistically significant relationship between food insecurity score and interest in going to a food pantry. This suggests clinical resources directed towards addressing food insecurity through food pantry referrals will be more effective among more food insecure patients. Additionally, previous food pantry visits also appear to have an effect on interest in going again. Among the interested patients who have reached for follow-up, nearly 40% (14/34) have gone to a food pantry and 85.7% (12/14) plan to go again. More than half (8/14) of these patients had not previously been to a food pantry. Future studies at the UCSDSRFC will include the on-going follow-up of individuals referred to food pantries and comparison of food insecurity and clinical outcomes between individuals using food pantries and those who are not.

Introduction:

The USDA defines food insecurity as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."[4] In 2014, 14% of America, or 17.4 million households, was food insecure.[3] Food insecurity is associated with major depressive symptoms, [19] increased risk of developing diabetes, poor diabetes control, [13] and hypertension.[5] Although any ethnic and socioeconomic group can experience food insecurity, households headed by single mothers, Hispanics, African-Americans, and with incomes 185% of the poverty threshold are most affected. At UCSD Student-Run Free Clinics (UCSDSRFC), patients are disproportionately impacted by food insecurity. In a recent

study, 74% of 430 UCSDSRFC patients were food insecure and 30% had very low food security.[17]

The majority of the UCSDSRFC patients live in Southeastern San Diego. This region is a food desert, which the USDA defines as "a low- income neighborhood (or Census tract) that does not have a supermarket within 0.5 mile (if located in an urban area)."[4] Southeastern San Diego has been further characterized as a "food swamp."[10] The defining features are "high exposure to high-calorie and low-nutrient foods and drinks" and limited exposure to healthy produce.[10] In approximately 50% of all food stores audited in Southeastern San Diego, there was either no produce or a limited selection of five or fewer items. By contrast, every store audited carried soda and more than 80% of these stores offered twenty of more varieties of soda. Another important feature of food swamps is a higher cost of food. Nationally, the cost of nutritious food such as fresh fruits and vegetables has increased disproportionately to less-healthy options such as soft drinks and fats and oils.[14] Additionally, in San Diego County, the average cost of a meal in 2018 was 36 cents higher than the national average of $3.00.[6]. Thus, the combination of cost and distance to nutritious food may partly explain why patients of the free clinic living in southeastern San Diego experience such high rates of food insecurity.

The high prevalence of food insecurity makes the UCSDSRFC patient population an ideal population to study to better understand the health consequences of food insecurity and to develop effective interventions. For example, the UCSDSRFC established the Food Rx Program in 2015 lessen the burden of food insecurity and its many negative health consequences. At each clinic appointment, patients receive two 5-10 lb. bags of food, one bag of fresh produce and another bag of dried goods. This program provides support for the patients, but does not fully address their food insecurity.

Most clinical settings that are screening for food insecurity do not also have an onsite pantry to refill "Food Prescriptions." Rather, clinics refer their food insecure patients to food pantries in the community. The Food Rx Program at UCSDSRFC provides food to patients through contributions from Feeding San Diego. Feeding San Diego has hundreds of other partners throughout San Diego. In total, Feeding San Diego partner food pantries provide healthy food free of cost to over tens of thousands of San Diego residents every week. The majority of UCSDSRFC patients live as close or closer to other Feeding San Diego partners than to any of the three clinic sites. The primary goal of this study was to explore the relationship between food insecurity and interest in food pantry utilization. The hypothesis was that interest in food pantry utilization would increase with increasing food insecurity.

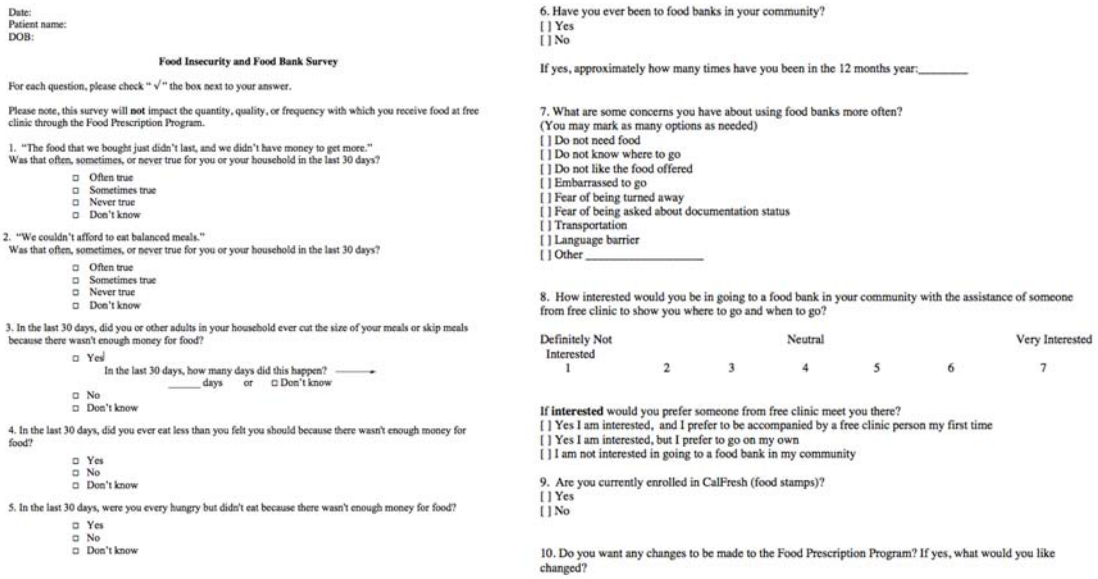
Methods:

A survey was designed in consultation with the pre-existing Food Rx Program. The survey included the 6-item USDA insecurity questionnaire and five additional questions (Figure 1). These additional questions addressed previous pantry utilization, concerns about food pantries, current interest in going to a food pantry, Cal Fresh enrollment, and satisfaction with the current Food Rx program at UCSDSRFC. After a two-week period, it was noted that the free response format of the question addressing concerns about

community pantries was routinely left blank, and so the survey was altered to have multiple selections for this question (as seen in Figure 1). All patients of the free clinic who had appointments during the three-month survey period were eligible to be in the study. Each patient only completed one survey during the study period.

Figure 1. Survey Page 1 is the 6-item USDA food insecurity screening questionnaire contained in questions 1-5. Page 2 has 5 additional questions. Note: question 7 changed after two weeks from free response to the form above.

Surveys were distributed beginning at appointment check-in and were collected by the Food Rx volunteers prior to patients leaving clinic. Surveys were available in Spanish



Date:
Patient name:
DOB:

Food Insecurity and Food Bank Survey

For each question, please check " √ " the box next to your answer.

Please note, this survey will **not** impact the quantity, quality, or frequency with which you receive food at free clinic through the Food Prescription Program.

1. "The food that we bought just didn't last, and we didn't have money to get more."
Was that often, sometimes, or never true for you or your household in the last 30 days?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ Don't know

2. "We couldn't afford to eat balanced meals."
Was that often, sometimes, or never true for you or your household in the last 30 days?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ Don't know

3. In the last 30 days, did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?

- ☐ Yes
  In the last 30 days, how many days did this happen? ——→
  _____ days or ☐ Don't know
- ☐ No
- ☐ Don't know

4. In the last 30 days, did you ever eat less than you felt you should because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ Don't know

5. In the last 30 days, were you every hungry but didn't eat because there wasn't enough money for food?

- ☐ Yes
- ☐ No
- ☐ Don't know

6. Have you ever been to food banks in your community?
[ ] Yes
[ ] No

If yes, approximately how many times have you been in the 12 months year:_____

7. What are some concerns you have about using food banks more often?
(You may mark as many options as needed)
[ ] Do not need food
[ ] Do not know where to go
[ ] Do not like the food offered
[ ] Embarrassed to go
[ ] Fear of being turned away
[ ] Fear of being asked about documentation status
[ ] Transportation
[ ] Language barrier
[ ] Other _____

8. How interested would you be in going to a food bank in your community with the assistance of someone from free clinic to show you where to go and when to go?

Definitely Not Interested			Neutral			Very Interested
1	2	3	4	5	6	7

If **interested** would you prefer someone from free clinic meet you there?
[ ] Yes I am interested, and I prefer to be accompanied by a free clinic person my first time
[ ] Yes I am interested, but I prefer to go on my own
[ ] I am not interested in going to a food bank in my community

9. Are you currently enrolled in CalFresh (food stamps)?
[ ] Yes
[ ] No

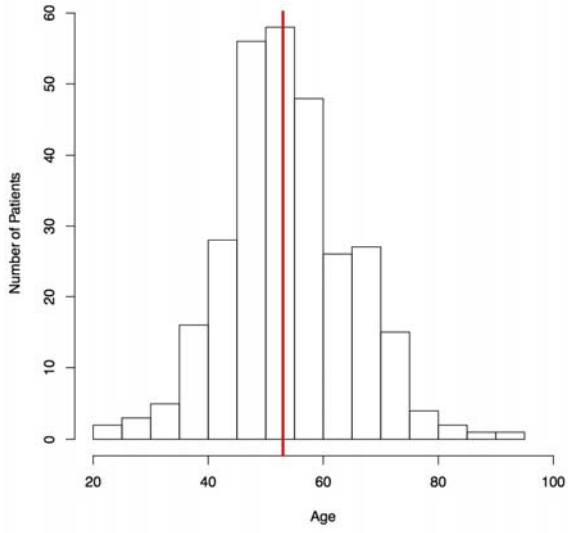
10. Do you want any changes to be made to the Food Prescription Program? If yes, what would you like changed?

and English. Volunteers assisted patients who could not read and/or write.

Patients who reported an interest level of going to a food pantry of a 5, 6, or 7 were considered "interested" for the purpose of follow-up calls. All interested patients were initially called within a month with additional information about a food pantry nearest their home. For patients who indicated they were interested in being accompanied by a volunteer to the pantry site, this interest was addressed and arrangements were made if this was still the patient's preference. If a patient could not be reached, a standard telephone message was left when possible. One patient did not have a phone and so her preferred email address was used instead with the complete information. At least three attempts were made to reach all patients with the information regarding a food pantry. Additional follow-up occurred within a three-month period. Follow-up addressed if they went to a pantry; if yes, would they go again, and if not, why not.

Statistical analysis was completed with the assistance of a statistician using R. Given that a majority of surveys had various questions left blank, any patient who completed some aspect the food pantry part of the survey (questions 6-10) was included in the respective aspects of the analysis.

Results:
296 surveys were distributed over a three-month period between September and December of 2018. 4 were excluded from all analysis. 2 surveys were lost and 2 surveys had no demographic information. For the remaining 292 surveys included, the mean patient age was 54.5 years old (Figure 2). Approximately 80% were female and 99% were Hispanic. UCSDSRFC has three clinic sites which provide food through the Food Rx Program, Downtown (DT), Normal Heights (NH), and Pacific Beach (PB). Each was represented approximately equally in the study. 292 surveys were included in some or all analysis depending on completeness.



Male	Female
59	233

Clinic Site	DT	NH	PB
	100	99	93

Figure 2. Patient Demographics. N=292. Left: Age histogram with red vertical line= median age, 53. Top right: Number of male and female patients. Bottom right: Number of surveys from Downtown (DT), Normal Heights (NH), and Pacific Beach (PB).

The median food insecurity score was 2 among all 292 surveys (Figure 3). 61.6% of patients were food insecure and 15.7% patients had “very low food security” by the USDA score of a 5 or 6. 19 patients only completed the 6-item food insecurity survey and so were not included in further analysis.

Figure 3. Food Insecurity Scores. N=292. Red vertical line= median score, 2.

272 patients completed some or all of the questions related to food pantry utilization. 264 patients responded to whether or not they have previously been to a pantry. 30.8% (84/264) patients reported having previously been to a food pantry and 77 patients reported they had been to pantries an average of 6 times in the 12 months (Figure 4).

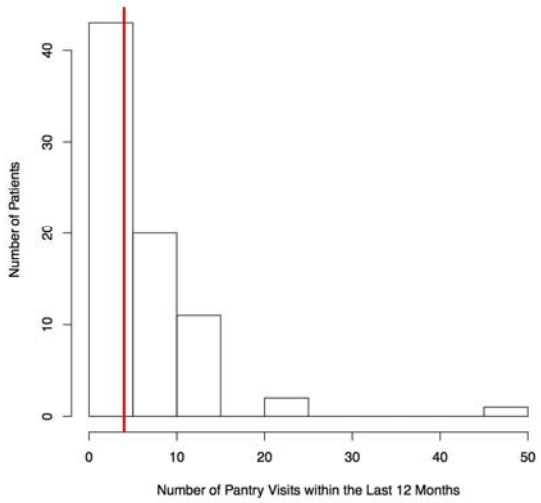


Figure 4. Number of Pantry Visits within the Last 12 months. N=77. Red vertical line is the median, 4.

154 patients responded to concerns about food pantry utilization. The most common concerns reported were transportation and fear of being asked about documentation status (Figure 5).

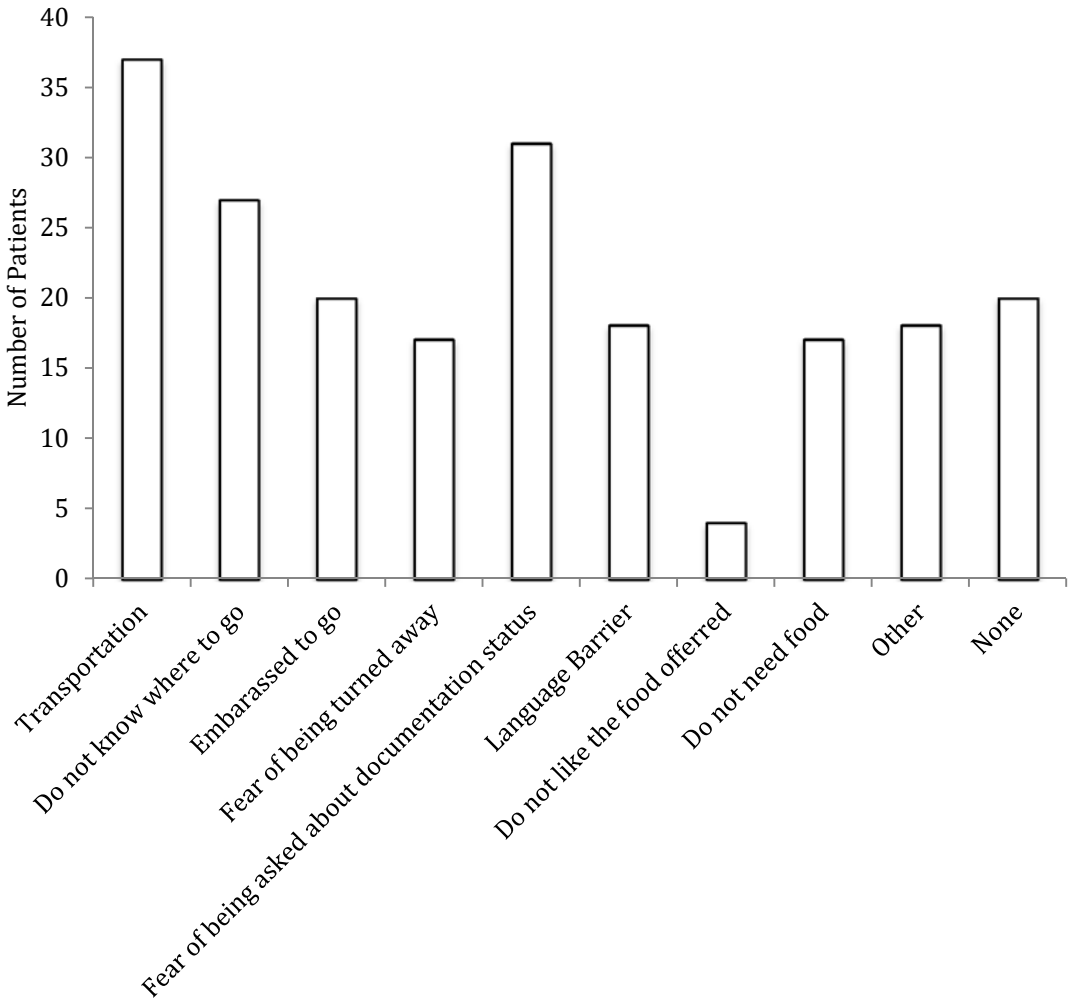


Figure 5. Concerns About Food Pantry Use. N=154.

241 patients responded to the food pantry interest level question on a scale of 1-7 with a median interest of 4 (Figure 6). 12.7% (32/252) reported CalFresh enrollment. 83.3% (80/96) wrote that they had no recommended changes to the Food Rx Program (data not shown).

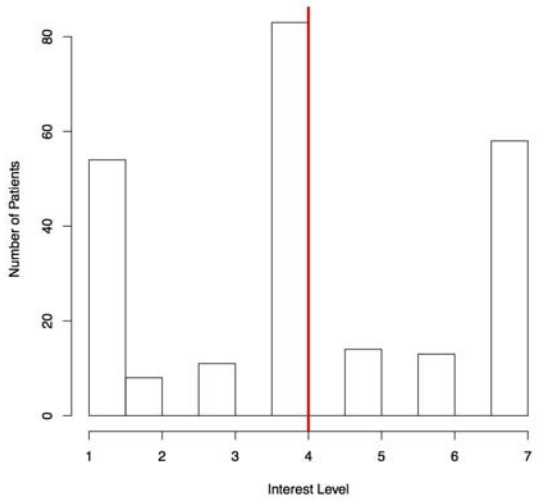


Figure 6. Interest in going to a food pantry on a scale of 1-7. N= 241. 1= Definitely Not Interested, = Neutral, and 7=Definitely Interested.

Boxplots were used to visualize the relationship between food insecurity score, age, gender, clinic site, CalFresh enrollment, and previous pantry visits (Figure 7). Of these variables, food insecurity score and previous pantry visits were most predictive of patients' level of interest in going to a food pantry.

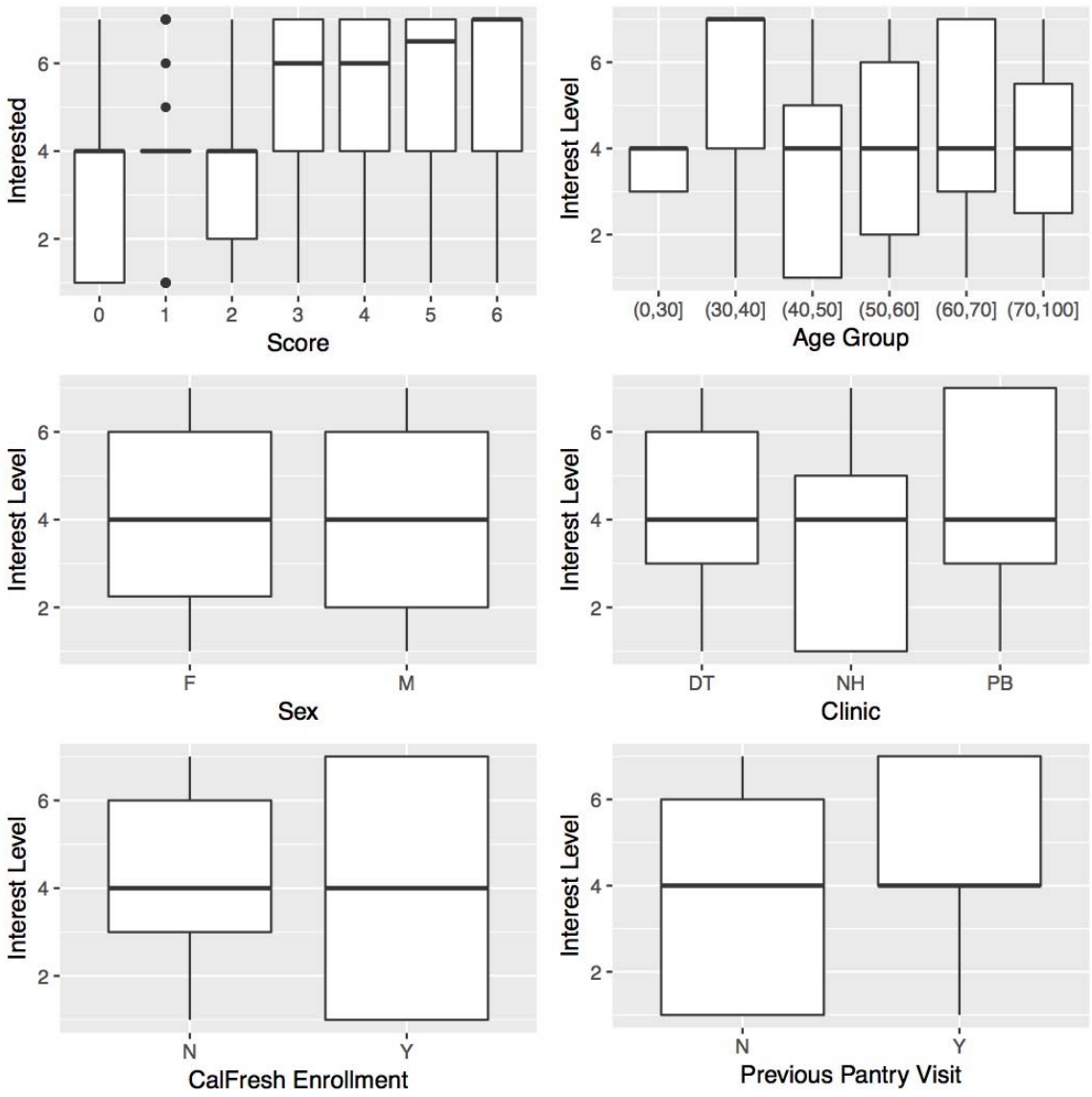


Figure 7. Box Plots Demonstrating Relationship Between Interest Level and Variables. Top left: Interest Level and Food Insecurity Score, N=241. Top Right: Interest Level and Age, N=241. Middle Left: Interest Level and Sex, N=241. Middle Right: Interest Level and Clinic Site, N=241. Bottom Left: Interest Level and CalFresh Enrollment, N= 231. Bottom Right: Interest Level and Previous Pantry Visits, N= 235.

A linear regression indicated food insecurity score was the only statistically significant factor (p=5.39e-11) (Table 1). The food insecurity score variable was modeled as a stepwise function, with scores less 3 and scores greater than or equal to 3 based off the results visualized in the plot. Food insecurity score was still statistically significant when the food insecurity score was modeled at 7 discrete values (analysis not shown). However, given the results of the box plot, this was not deemed the most accurate model. The adjusted R-squared (0.1871) suggests a weak positive correlation between food insecurity scores and interest in food pantry utilization. Using ANOVA, both food insecurity score and previous pantry visits were statistically significant (Table 2).

Table 1. Linear Regression Model. *** statistically significant variable affecting interest in going to a food pantry on a scale of 1-7. The DT clinic was used as baseline clinic compared to NH and PB clinic. The CalFresh non-responders were used as a baseline compared to CalFresh-No and CalFresh-Yes. The Previous Visits non-responders were used as a baseline compared to Previous Visit-No and Previous Visit Yes.

Coefficients:	Estimate	**Std. Error**	**t value**	***p* value**
Intercept	1.9166	0.9081	2.111	0.0359
Food Insecurity Score	1.8287	0.2657	6.883	5.39e-11 ***
Clinic- NH	-0.1185	0.3122	-0.380	0.7045
Clinic- PB	0.2103	0.3075	0.684	0.4947
CalFresh-No	0.9247	0.6514	1.420	0.1571
CalFresh-Yes	0.3072	0.7344	0.418	0.6761
Previous Visit-No	0.5078	0.8332	0.609	0.5428
Previous Visit-Yes	1.1515	0.8487	1.357	0.1761

Residual standard error: 1.943 on 233 degrees of freedom
Multiple R-squared: 0.2109, Adjusted R-squared: 0.1871

Table 2. Analysis of Variance Table. * indicates statistically significant variable with $p < 0.05$.

	DF	**Sum Square**	**Mean Square**	**F Value**	***p* value**
Food Insecurity Score	1	186.07	186.074	49.2990	2.386e-11*
Clinic	2	7.84	3.920	1.0385	0.35562
Cal Fresh Enrollment	2	17.26	8.632	2.2869	0.10386
Previous Pantry Visit	2	23.80	11.898	3.1524	0.04458 *
Residuals	233	879.43	3.774		

85 people responded with an interest level of 5, 6, or 7. 51 patients indicted they preferred to go alone and 23 indicated they did preferred to be accompanied. 2 marked they did not want to go at all and 9 did not mark an answer for if they preferred to go to the pantry alone, accompanied by someone from free clinic, or did not want to go at all.

18 of the 85 patients were never successfully contacted by telephone after three calls attempts were made during the 3-month study period. Of the 67 interested patients contacted, 7 were no longer interested in going to a food pantry in their community. The 60 remaining patients were provided information regarding food pantries near their homes. 8 patients ultimately preferred to be accompanied by someone from the clinic to the food pantry.

34 of the 60 interested patients were reached again for additional follow-up during the three-month study period. 13 patients reported having gone to the pantry. 12 of the 14 would go again. Of the 20 who had not gone, 6 reported they plan to go in the near future, 5 needed the food pantry information repeated, 4 could not go because of transportation, 3 had scheduling conflicts, and 2 no longer felt they needed to go.

Discussion:

The results of the survey demonstrate persistently high food insecurity of the UCSDSRFC patients. This study suggests an improvement in food insecurity at UCSDSRFC since the implementation of the Food Rx Program. In a 2015 survey conducted with 430 patients UCSDSRFC patients, 74.0% were food insecure and 30.9% had "very low food security." This study includes 292 patients with a food insecurity rate of 61.6% (180/292) and 15.8% (46/292) of patients with "very low food security." Additionally, this study, though not its primary focus, did demonstrate overall satisfaction from the UCSDSRFC patients regarding the Food Rx Program with 83% (80/96) of patients who responded to question 10 reporting no recommended changes to the current Food Rx Program. However, the rate of food insecurity at the UCSSRFC remains staggering even when compared to national rates of households headed by Hispanics (22.4% food insecure) and low income households with incomes below 185% of the poverty threshold (33.7% food insecure).[3] Thus, additional interventions are still needed.

A simple intervention is referring patients to local food pantries. However, there are significant barriers to food pantry utilization. The concerns around food pantry utilization in the population at the UCSDSRFC demonstrate how difficult it can be to address these barriers. For example, transportation was the most commonly cited concern. This is a statewide factor impacting food insecurity. In California, more than one million residents do not have access to a car and nearly one third of these million residents live further than a half mile from a grocery store.[13] Second only to transportation, fear of being ask about documentation status was another common concern expressed by patients in this study. Unlike transportation, fear of being asked about documentation status is unique to clinics that serve primarily undocumented individuals.

There are also psychosocial barriers to pantry utilization. In this study, 20/154 patients reported being embarrassed to go and another 17/154 reported fear of being rejected as concerns about food pantry use. Psychosocial barriers to food pantry utilization have been previously studied. A previous study explored why food insecure households do not go to food pantries and categorized non-utilizers into two categories: Choosing Not to

Use Food Banks and Barriers.[12] Overall, 65% of participants chose not to use food banks category and 33% of participants said there were barriers to using food banks. Participants who cited barriers as why they do not use food banks roughly equally selected the reasons access and lack of information. Among the participants who choose not to use food banks, 12% of participants cited identity. The identity concern referred to a desire to distance themselves from whom they believed to be utilizing food pantries. Another 11% of participants cited degradation as a deterrent. By offering patients the option to be accompanied by UCSDSRFC personnel, the goal was to address the stigma of food pantry use by making it an extension of their healthcare. Of the 23 interested people who marked accompanied as their preference, 17 were contacted and only 8 ultimately preferred to be accompanied. 3 of these patients were provided with transportation from UCSDSRFC volunteers. So it is difficult to determine if accompanying patients primarily addressed logistic (i.e. transportation) or psychosocial barrier. Additionally, it is likely impractical in most clinical settings to have volunteers assist patients to pantries.

The primary goal of this study was to better understand behavior around food pantry utilization and effectively refer patients who expressed interest in food pantry utilization. Food insecurity score was the single most significant variable predicting reported interest in going to a community food pantry. However, it is very weakly correlated with an adjusted R-squared of 0.18. Even so, it is clinically useful information because it suggests clinical resources directed towards addressing food insecurity through food pantry referrals will be more effective among more food insecure patients. Perhaps not surprisingly, other than food the insecurity score, previous pantry utilization was a statistically significant variable impacting interest in going to pantry when using ANOVA. This may be because patients who have previously gone to panties have already overcome the psychosocial barrier of accessing them in the past.

At this time, nearly 40% (14/34) of patients reached for follow-up have gone to a food pantry since being referred. More than half (8/14) of these patients had never previously been to a community food pantry, and 85.7% (12/14) of patients reported a positive experience and plan to go again in the future. While these are still relatively small numbers, it demonstrates an ability to change perceptions of and behaviors around food pantry use. Long-term follow-up with the study cohort and additional attempts at reaching patients for follow-up will allow us to better understand if more patients ultimately went to a food pantry and if patient who had gone once did in fact keep going.

The strength of this study is the number of surveys. Additionally, the findings of this study are strengthened by that fact that the UCSDSRFC population's food insecurity is already well documented. The greatest weakness of this study is incompleteness of the surveys. For example, only 241 of 292 patients indicated an interest level for going to a food pantry. 19 patients did no part of the second page; it is possible they did not see the second page. However, another 32 patients did some aspect of the second page but still did not indicate an interest level. Did they not respond because they were not interested? Similarly, for question 10 regarding any wanted changes to the current Food Rx program, only 96 patients responded, 81 of whom specified that they did not want any changes.

Were more patients satisfied but left it blank because they have no recommended changes? As one can only speculate the meaning of non-responses, interpretation is not possible.

This study aimed to determine factors that impact interest in going to food pantries. Food insecurity scores greater than or equal to 3 and previous pantry visits seem to predict interest in going. However, this study only scratched the surface of the important follow-up question: will interested people actually go? While the survey aspect of this study is complete, additional attempts can be made to contact the 18 patients unable to be contacted. Also, additional follow-up can be made with patients who were contacted to determine if they went and if they are continuing to go to food pantries. Future studies could also determine whether or not referral to food pantries have positive clinical outcomes. There is some evidence for small but clinically significant improvements in health outcomes with food pantry utilization. A study conducted from 2012-2014 enrolled 687 diabetic patients in a pilot intervention that offered participants diabetic-appropriate food pantry options as well as blood glucose monitoring and a primary care referral.[15] Pre-post analyses showed overall improvement in HbA1C, fruit and vegetable in-take, and medication adherence. Although reduction of HbA1C was small (mean HbA1c from baseline 8.11 percent to follow-up 7.96 percent), it was statistically significant and clinically meaningful. Given that 31.8% (84/264) of patients in this survey reported already going to pantries, it would be feasible to study if food pantry utilization improves food insecurity and its health consequences among the UCSDSRFC patients.

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