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Food Insecurity Screening in a Federally Qualified Health Center's Primary Care Setting

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Food Insecurity Screening in a Federally Qualified Health Center Setting

Food insecurity (FI), the limited access to food due to a lack of money or other resources, negatively impacts health across the lifespan (Coleman-Jensen, Rabbitt, Gregory, & Singh 2016). It is associated with chronic disease, adverse health outcomes, avoidable health care utilization and increased health care expenditure (American Academy of Pediatricians (AAP), 2015; Pooler, Hoffman, Karva, Levin, & Lewin-Zwerdling, 2016; Oregon Primary Care Association [OPCA], 2017). Addressing FI in the primary care setting can positively impact a patient's health status.

Clinical Issue

During 2016, 12.3% of U.S. households reported being food insecure (United States Department of Agriculture [USDA], 2017). This equated to 41.2 million individuals, including 6.5 million children (USDA, 2017). With 14.2% of Oregon households reporting FI, Oregon has the ninth highest rate of FI in the U.S. (Feeding America, 2017). Implementation of this project occurred in a federally qualified health center (FQHC) primary care clinic serving uninsured, underinsured and predominantly Medicaid recipients; a population that is twice as likely to be food insecure than the general population (OPCA, 2017). Based on this context and the fact that the three counties served by the FQHC have higher than national FI percentage rates (USDA, 2017) this clinic identified its current lack of patient screening as a focus for this project.

Background & Significance

FI directly correlates with income (National Coalition for the Homeless, 2011). Serving over 420,000 of Oregon's most vulnerable populations, FQHCs are uniquely situated to address this issue (OPCA, 2017). Implementing routine FI screening and providing a list of local food resources is a means to both identify and address food insecure patients, potentially resulting in improved patient outcomes and reduced healthcare spending. Additionally, screening and

intervening will help facilitate this organization's compliance with the Oregon Health Authority's performance measure as well as national organizations' recommendations; therefore ensuring alignment with this particular FQHC's strategic plan.

Purpose, Aims and Research Question

The purpose of this project was to implement a FI screen and intervention into an FQHC's primary care clinic. The primary aim of this project was to identify FI patients using the Hunger Vital Sign (HVS), a validated two-question screening tool (Hager et al., 2010). A subsequent aim was to provide individuals with a positive screen, information on local food resources, and referrals to federal nutritional programs as appropriate. A final aim was to track comorbidities of individuals with a positive screen; hypertension, diabetes, obesity and depression. This project addressed the question: In an FQHC clinic, how does food insecurity screening compared with no screening, affect the identification and intervention of food insecure individuals and families over a 9-week time period?

Theoretical Framework for the Practice Change

The Center for Disease Control and Prevention (CDC) developed a conceptual framework and implementation protocol to prepare effective health care interventions for implementation in community-based settings (Kilbourne, Neumann, Pincus, Bauer, & Stall, 2007). This "Replicating Effective Programs" framework was chosen for the implementation of this project.

Evidence

This author used the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Medline databases to perform a systematic search on the FI screening literature. Search terms included: "food insecurity", "food insecurity screening in primary care", "barriers

to food insecurity screening”, “food insecurity screening tools”, “implementation of food insecurity screening in primary care”, and “effectiveness of food insecurity screening”. The initial search included the limiters of “full-text”, “English”, “human”, “peer reviewed”, “evidence-based practice”, and dated 2010-2017. The critical appraisal of evidence for these studies is shown in Table A1, the synthesis of the literature is shown in Table A2.

Literature Review

Clinic, providers and patients.

The literature reveals that patients appreciate being asked about FI (O’Toole & Roberts, 2017; Palakshappa et al., 2017; Thomas, Fitzpatrick, Sidani, & Gucciardi 2017). Providers find it rewarding to screen patients and intervene when positive (Palakshappa et al., 2017). A study of six Veteran Administration (VA) clinics that implemented FI screening found both patients and health care providers to be receptive (O’Toole & Roberts, 2017). Thomas et al. (2017) found similar results in their systematic review among providers and patients in Canada.

Comorbidities

Studies have shown that food insecure older adults are more likely to suffer from chronic disease such as diabetes and heart conditions (Pooler et al., 2016). One study in particular showed an 87% FI rate among diabetics compared to 65% among those without (Smith et al., 2017).

Evidence for FI screening instruments.

Recognizing the importance of a shorter screening tool for use in busy primary care settings, Children’s Health Watch (2010) developed the HVS screening tool based on the original Household Food Security Scale (HFSS) survey. Hager et al. (2010) validated this tool for the primary care setting. It is recommended due to its brevity, high sensitivity (97%) and specificity

(83%) (Gundersen, Engelhard, Crumbaugh, & Seligman, 2017; Smith, et al., 2017). A response of “often true” or “sometimes true” to either question constitutes a positive FI status.

Implementation

This project was designed to offer FI screening to patients at a targeted FQHC’s primary care clinic. A University Internal Review Board approved the project. All patients attending a new patient appointment during the study period were invited to participate in the project. The self-administered screening questionnaire was included in the new patient paperwork. Medical Assistants (MA) entered patients’ responses into the Electronic Health Record (EHR) utilizing preassigned phrases that would allow the data to be extracted throughout the project. MAs forwarded the electronic charts of positive screens to the patient provider and the Community Health Worker (CHW) and offered a list of local food resources to these patients. The CHW followed up with each patient to offer further information on local food resources, food and nutrition programs, including referral to federal nutritional programs as appropriate. These follow-up calls were documented in the EHR also utilizing preassigned phrases. The total number of people screened, the number that screened positive and the numbers given a list of local food resources were collected. A data analyst tracked patient comorbidities including hypertension, obesity, depression and diabetes. Screening occurred over a nine-week period (February-April 2018).

Evaluation

The author used categorical data to determine frequencies and percentages of the data collected. The goal of evaluation was to determine the prevalence of FI among this FQHC’s patient population and any association with comorbidities, including hypertension, diabetes, obesity and depression. Data was collected on a weekly basis and included the weekly rates of

patient screening, and the rates of the number of patients with positive screens provided with a list of local resources.

Ethical Considerations

The primary ethical concern was the sensitive nature of FI screening. To ensure patient privacy, personal identifiers were not used on the screening tool provided. MAs entered results into the patient's EHR adhering to strict confidentiality per Health Insurance Portability and Accountability Act (HIPAA) regulations. All subsequent data was collected in aggregate form.

Results

A total of 213 patients were screened over the nine-week period. Weekly data collection showed that daily screening rates ranged from 54.3% to 96.6%, with a mean rate of 74.5%. The percentage of patients provided with a list of local food resources ranged from 40% -100% per day with a mean of 77.2%.

The percentage of positive screens (30%, n=64) was higher than the county's rate of 14.1%. This was anticipated considering that the clinic serves uninsured, underinsured and predominantly Medicaid recipients; a population that is twice as likely to be food insecure than the general population (OPCA, 2017). Based on the literature (Pooler, et al., 2016) the higher rates of FI among patients with diabetes (60%), hypertension (37%), obesity (42%), and depression (51%) were also anticipated. Medicaid recipients FI rate (41%) was lower than the anticipated 50% (OPCA, 2017).

Summary and Implications

Patient findings.

Food insecurity rates.

The higher rates of FI found in this project were anticipated in clinics that serve the country's most vulnerable, underserved patient populations. Other studies of similar clinics showed rates as high as 46% (Smith et al., 2017). A five-month FI screening implementation project conducted in 3 underserved clinics in California (FI rate of 12.5%) found a staggering FI range of 63% - 88% (Smith et al., 2017).

Comorbidities.

The higher rates of FI among patients with comorbidities were anticipated based on the literature. Studies have shown that food insecure adults are more likely to suffer from chronic disease such as diabetes and heart conditions (Pooler et al., 2016). In a previous study, FI was shown to be an independent risk factor for depression, with a 60% more likelihood of experiencing it than among those that are food secure (Pooler et al., 2016).

Medicaid recipients.

In Oregon, adults who earn up to 138% of the Federal Poverty Level (FPL) are eligible for Medicaid, putting them at risk for FI (OPCA, 2017). National-level data suggests individuals on Medicaid are twice as likely to be food insecure than the general population (OPCA, 2017). The clinic site for this project is the only Medicaid provider in a town of 62,000 people. The FI rate among Medicaid patients (41%) is lower than anticipated. This could be due to screening only new patients whom have not yet established trust or rapport with the clinic and its providers. Another study in Oregon, using the same screening tool over a two-year implementation period with a significantly larger population size (n=2000) showed an 81% FI rate among Medicaid recipients (Center for Outcomes Research and Education, 2016).

Implementation findings.

Screening rates.

The variance of screening rates by day from 54.3% to 96.6% is of interest. It is difficult to determine the reasons for this other than that on busier clinic days, time limitations may have interfered with providing all the screenings required of new patients. Spring break occurred during the implementation period resulting in some staff being on vacation. This left less than normal number of staff working in the clinic, which could also account for lower screening rates. Reviewing the literature for other FI screening projects however; screening rates varied from 63.3% to 92.5%, (Smith et al., 2017; Seligman, Bindman, Vittinghoff, Kanaya, & Kushel, 2007) placing this project's screening average rate of 74.5% within a reasonable range.

Providing a list of local food resources

The wide variance in patients given a list of local food resources week to week was of interest. Initial confusion about which preassigned phrase to use when entering screening results into the EHR could account for this variation. During patient follow-up calls by the CHW, patients were asked if they had received a list of local food resources. All said they had, suggesting the data was not captured in its entirety.

Lessons Learned

The high level of staff engagement and support were key to the success of this project. This project would not have been possible without highly proficient data analysts, Information Technology specialists and an EHR to track meaningful data. While the decision was made to restrict this project to only new patients, future projects should broaden scope to include already established patients.

Conclusions

Recommendations and Sustainability

The literature reveals higher rates of FI among underserved clinics, suggesting the importance of continued screening among at risk patient populations. It is hoped this FQHC will continue to support FI screening within its clinics. To increase local food resources available to food insecure patients and to ensure sustainability of this project, the organization will need to continue fostering collaborations with other community organizations.

Clinic staff needs to be kept apprised of workflow design refinements including the use of specific EHR preassigned phrases to track meaningful data. The capturing of patients' comorbidities by IT specialists and data analysts elucidated the greater potential for this and future projects. Continuing to track health data metrics (blood pressure, hemoglobin A1c, body mass index, depression scores) will highlight any improvements related to intervening over time and thus the importance of FI screening.

Literature reveals concerns among providers around screening without intervening. It is important for staff to both offer and track their provision of resources to all those with positive screens. Additionally, CHWs should continue to reach out to patients who screen positive. National organizations posit that intervening can increase the likelihood of patients maintaining enrollment in vital federal nutrition assistance programs (Makelarski, Abramsohn, Benjamin, Du, & Lindau, 2017). One study among patients eligible for SNAP enrollment, estimated that increasing enrollment alone would be associated with millions of dollars in healthcare cost savings (Makelarski et al., 2017).

It is hoped that screening for FI and other social determinants of health will be a routine part of every patients' medical visit, just as alcohol and tobacco use has become. It is especially important in clinics that serve the most at-risk patient populations, where FI rates tend to be

highest. If FI is not recognized, it cannot be treated. If it is not treated the negative and expensive health sequelae will persist.

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Appendix A

Table 1

Evaluation Table of Evidence

Citation (author, year, title)	CF or TF	Method	Sample Setting Characteristics	IV DV and definitions	Measurement	Data analysis (stats)	Findings/ Results	Worth to Practice: LOE Strengths Limitations Applicability Feasibility
1. Thomas et al (2017) Developing and implementing a food insecurity screening initiative for patients living with diabetes	R NN	A SR informed the dev of a FIS init to help HCP tailor D2 mgt plans and better support FI pts with D2	n=33 pts n= 15 HCP Stg: D2 care clinic	IV FI sng DV D2 self-mgt	Q; INT; PS 3 phase pct	Induct QL appr	Sng Qs help pts who are uncomf with voluntarily disclosing FI to their HCP Sng elicits rich info about pts exp with FI Integ sng qs into EMR ↑ conv of sng qs and prompted	Level 4 L: s smp sz. 3 of HCPs were diet and not MP A: Barriers to FIS is similar in PC settings F: pc proj stg in support to ↑ FIS

							HCP to screen pts		
2. Makelarski, et al (2017) Diagnostic accuracy of two food insecurity screeners recommended for use in health care settings	R	NN	P diag acc studies	2 conv smp from adult and ped ED WR. 12 mth sur part n=154. 30-d part n=118 Stg: Acad MC	IV FIS DV Sng tool to use	Sens and spec of AAP vs HVS FIS tools with 30-d and 12-m qs	Des stats Sens Spec 95% CI Mc Nemar test	Sens & Spec of HVS tool ↑ than AAP tool	Level 4 S: N ↑ L: hsp stg A: HVS tool will be used in DNP proj F: PC settings have similar issues
3. Hager et al (2015) Development and validity of a 2-item screen to identify families at risk for food insecurity	R	NN	Interviews	n= 30,098 years 1988-2005 Stg: 7 Acute, PC & hsp-based	IV= FIS DV-1= FI & FS DV-2 risk for neg HO	CHW sur instrm	SAS 9.1 analyses	FS N= 23,236 FI N=6842 P < .001 Reported child health for FS 1.72 vs FI 1.56, p<.001	Level 4 S: N ↑ data tools provided L: less precise methods used A: PC settings have similar issues F. similar pt pop as DNP proj site





4. Lane et al (2014) The effectiveness of food insecurity screening in pediatric primary care	R	Part of a large RCT; the SEEK study	Stg: PC clinic	IV FIS DV-1 screening rates DV-2 #SNAP enrollees DV-3 Reduced FI	Validity, PPV & NPV Cohen's Kappa SAS version 8.1 Chi-square analysis		SEEK families had larger screening rates than control group SEEK families more likely to maintain SNAP enrollment FI rates unchanged between both groups	Level 3 S: N ↑ L: SEEK PSQ addresses issues other than FI A: Similar patient population as DNP project site F: Families are a target population of DNP project site
5. Mabli & Ols (2015) Supplemental nutrition assistance program participation is associated with an increase	R	Sur and a quasi-experimental research design that consisted of 2 sets of comparisons ; a cross-sectional	n=3275 Stg: households	IV1: STEADI DV1: Fall rate	IV SNAP participation DV level of FI	Descriptive Stats logistic regression model	SNAP participation decreased the % of SNAP households that were FI in both samples by 6-17%	Level 4 S: N ↑, L: A: SNAP will be a resource used by DNP site for patients who screen + for FI


in household food security in a national evaluation		l comparison group design and a longitudinal design						F: Maj of pts at DNP site are SNAP eligible
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AAP=American Academy of Pediatrics, Acc=accuracy, Acad=academic, Appr=approach, A=applicability, CHW=Childrens Health Watch, CI=confidence interval, CF=conceptual framework, conv=convemience, d=day, Des=descriptive, D2=Type 2 diabetes, diet=dieticians, diag=diagnostic, dev=development, DV=dependent variable, ED=emergency department, EMR=electronic medical record; exp=experience, F=feasibility, FI=food insecurity, FIS= food insecurity screening, HCP=healthcare provider, HO= health outcomes, HVS=hunger vital sign, INTs=interviews, ind= inductive, init=initiative, inst=instrument, IV=independent variable, info=information, inc=increased, L=limitations, LOE=level of evidence, MC=medical center, mgt=management, M=method, MP=medical providers, NPV=negative predictive value, N=none, NR= not reported n=number, PPV=positive predictive value, PSQ=parent screening questionnaire, part=participants, PC=primary care, pct=project, P=prospective, PS=pilot studies, pt=patient, Qs=questions, QE=quasi-experimental, QL=qualitative, RCT=randomized control trial, SEEK= A safe environment for every kid, sens=sensitivity, SNAP= Supplemental Nutrition Assistance ProgramSpec=specificity, stats=statistics, stg=setting, s=small, S=strengths, sur=survey, sig=significance, smp=sample, sng=screening, SR=systemic review, sz=size, TF=theoretical framework, uncomf=uncomfortable, wr=waiting room,

Table 2

Synthesis Table

Article	Population	Intervention	Duration of Study	Change	Level of Evidence
Thomas et al., (2017).	Adult Type 2 diabetics in PC setting	Food insecurity screening	2 weeks	Feasibility of FIS 	4
Makelarski, et al., (2017).	Adults in adult and pediatric emergency department waiting rooms	Surveys	4 months	Diagnostic accuracy of HVS tool 	4
Hager et al., (2010).	Low-income families with young children	Surveys by trained interviewers	7 years	FIS 	4
Lane et al., (2014).	Parents of urban, low income children	Self-administered computerized interviews	18 months	Diagnostic accuracy of screening tool 	3

Mabli & Ols (2015).	SNAP households	Survey and 2 sets of comparisons	6 months	FI 	4
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F=Food insecurity FIS=food insecurity screening HVS=hunger vital sign