


Associations Between Patients' Unmet Social Needs and Self-Reported Health Confidence at One Primary Care Clinic

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Abstract

Social determinants of health affect a person's health at least as much as their interactions with the healthcare system. Increased patient activation and self-efficacy are associated with decreased cost and improved quality. Patient-reported health confidence has been proposed as a more easily measured proxy for self-efficacy. Evaluation of the association between unmet social needs and health confidence is limited. Our objective was to identify and address our patients' unmet social needs and assess health confidence levels. From November 2017 through July 2018 we screened 2018 patients of an urban academic family medicine residency practice for unmet social needs, measured their health confidence, and made referrals to community resources if desired. Patients reporting the presence of any social need reported lower health confidence scores on average than those with no needs (8.49 vs 9.30, median 9 vs 10, Wilcoxon test $P < .001$). Low health confidence scores (<7) were strongly associated with number of needs ($P < .001$) after adjusting for age, gender, race, ethnicity, payer, and visit type (1 vs 0 needs, odds ratio [OR] = 2.566, 95% CI 1.546–4.259; 2 or more vs 0 needs, OR = 6.201, 95% CI 4.022–9.561). Results of this quality improvement project suggest that patients with unmet social needs may have decreased perceived ability to manage health problems. Further study is needed to determine if this finding is generalizable, and if interventions addressing unmet social needs can increase health confidence.

Keywords

social needs, social determinants of health, screening, health confidence, self-efficacy, primary care

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Introduction

Social determinants of health, such as socioeconomic status, education, and social support, exert at least as much influence over a person's health as their interactions with the health care system.^{1–3} Attempting to improve individual and population health, medical settings are turning their attention to their patients' unmet social needs.⁴ Health care-based interventions to identify and address social needs have demonstrated the potential to decrease utilization⁵ and improve cardiovascular risk factors,⁶ though robust research on the impact of such programs is lacking.

Currently, 6 in 10 Americans have a chronic disease⁷ and require support for self-management of these conditions.^{8–10} A lower capability to self-manage has been associated with higher costs.¹¹ A higher capability to self-manage has been associated with improved health outcomes in a variety of chronic conditions.^{11–13}

Patient engagement, activation, empowerment, and self-efficacy are overlapping concepts addressing patients' and caregivers' capability, readiness to act, and/or perceived ability to manage chronic illness. Dartmouth Institute researchers' validated 1-question health confidence measure "How confident are you that you can control and manage most of your health problems?" (0 = not very confident, 10 = very confident, scores ≥ 7 associated with a higher level of confidence) has been proposed as a succinct proxy measure for patient engagement, which can inform patient-care team discussions (available as at healthconfidence.org, FNX Corp, and Trustees of Dartmouth College).^{14–16}

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Several studies evaluating financial strain and social isolation on self-efficacy or health confidence have been published,¹⁷⁻²⁰ but research examining the relationship between the number of unmet social needs and low or high health confidence has not occurred, in part because global screening for a bundle of unmet social needs in primary care patients is a relatively new process. This practice is becoming more common with the availability of several screening tools^{21,22} and the promotion of social needs screening process implementation in primary care by value-based programs such as Comprehensive Primary Care Plus (CPC+)²³ and by the National Committee for Quality Assurance.²⁴ Furthermore, measuring the effects of programs targeting social needs is challenging as improvements in access to food, transportation, housing, and so on, will likely affect not just a single laboratory value but instead ripple across many facets of health.

In November 2017, we implemented a screening and referral program for social needs among patients at the AF Williams Family Medicine Clinic in Denver, Colorado. Staff and providers had long been aware of the challenging life circumstances faced by many of our patients but felt incapable of acting until a social worker was added to our staff in 2015. Shortly after she joined the team, there was abundant referral volume, but not all patients engaged with the social worker after a need was discovered. As a result, we became curious if health confidence levels could identify patients most likely to follow up with our social worker. The purpose of this quality improvement pilot was to uncover unmet social needs to inform individual care plans and provide referrals to community services. The one question health confidence assessment was added to our social determinant screening questionnaire as a potential way of identifying patients most likely to engage in care management services. This article reports on the association between unmet social needs and health confidence in 1959 screened patients at an urban, academic hospital-associated family practice residency clinic. This work was carried out with funding from the University of Colorado School of Medicine Clinical Effectiveness and Patient Safety Small Grants Program. Our procedures were reviewed by the Colorado Multiple Institution Review Board and determined to be not human subjects research for the purpose of quality improvement (COMIRB Protocol 17-1392).

Methods

Setting

This quality improvement pilot took place at an urban, hospital-based, family medicine residency clinic. This clinic includes 20 resident physicians, 24 faculty physicians, and 2 advanced practice providers. A total of 18 600 patients are

empaneled at this site with approximately 46 000 patient visits per year. Of the empaneled patients, about 20% have public insurance and the remainder have commercial insurance.

Social Needs Screening

We created an 11-item screening questionnaire which assessed for transportation barriers, social isolation, food insecurity, financial strain, housing instability, personal safety, health literacy, health confidence, and desire for assistance with identified social needs (see Supplemental Appendix 1). Screening items pertaining to social isolation,²⁵ food insecurity,²⁶ financial strain,²⁷ health literacy,²⁸ and health confidence^{16,29} have been previously tested for reliability and validity by their authors. The transportation³⁰ and personal safety³¹ items have been published without details of their development. Questions on housing and desire for assistance were created de novo. Health confidence was assessed in the same survey using the Dartmouth Institute researchers' validated one-question health confidence measure described above (available as at healthconfidence.org, FNX Corp, and Trustees of Dartmouth College).¹⁴⁻¹⁶ Except for health literacy and health confidence, questions were adapted as needed to fit yes or no answer format. In an effort to decrease stigma and increase item sensitivity, the question on financial strain was modified to ask if patients "felt stressed" about making ends meet instead of "have difficulty" making ends meet. The final screening questionnaire was pilot tested with 34 patients to evaluate its face validity and patients' level of comfort with the questions. As this was a small quality improvement pilot, additional tests of validity and reliability were not pursued.

Adult and pediatric patients presenting for new patient visits, annual exams, or obstetric intake appointments were the target population for screening. These groups were selected because they are easily identified by the front-desk staff responsible for distributing the screening questionnaire. Patients were given the paper questionnaire on check-in for their appointment, completed it independently, and returned it to a medical assistant. For pediatric patients, the parent or guardian was asked to complete the questionnaire. The medical assistant entered the results into the electronic medical record and notified the clinician if any needs were identified. Patients requesting assistance with social needs were provided relevant community referrals in person or by telephone after the visit by the clinic's social worker or volunteer patient navigators.

Data Collection

At the conclusion of the social needs screening pilot, we retrieved a report from the electronic medical record summarizing visits occurring between November 2017 through July 2018. Data collected included visit date and

type, patient demographics, and results of the social needs questionnaire.

Data Analysis

Descriptive statistics (means, SD, frequencies) were computed initially. Screened and unscreened patients were compared on available data using chi-square tests. The primary outcome for analysis was the health confidence score. Health confidence scores between groups of interest were compared using nonparametric tests (Wilcoxon) since the distribution of scores was highly skewed. Because of skewness, the health confidence score was dichotomized as previously described¹⁴⁻¹⁶ (low confidence 1-6, high confidence 7-10). Multivariable logistic regression analysis was performed to further explore relationships between the number of social needs (0, 1, 2 or more) and low health confidence, adjusting for age, gender, race, ethnicity, visit type, and payer. Associations between independent variables and health confidence scores are considered to be significant if $P < .05$. Independent variables that were significant in the multivariable model were further tested for possible interaction effects. All analyses were performed using SAS version 9.4 (SAS Institute Inc, Cary, NC).

Results

A total of 2018 patients were screened and 1959 of these patients completed the health confidence question. The majority of the screened patients were new patients (56.4%, $n = 1138$), carried private insurance (83.4%, $n = 1682$ vs 12.8%, $n = 258$ with either Medicare or Medicaid), and identified as white (62.3%, $n = 1261$; Table 1). A total of 532 (27.16% of the screened population) reported having one or more social needs. The prevalence of individual unmet social needs in this population is previously reported.³² Among screened patients, prevalence of social needs varied by type of visit ($P = .011$), payer ($P < .001$), and race ($P < .001$), but not age, gender, or ethnicity (all P s $> .05$; Table 2). The mean health confidence score for the screened population that answered the health confidence question was 9.08. Patients with the presence of one or more social need reported lower health confidence scores than those with no needs (mean 8.49 vs 9.30, median 9 vs 10, Wilcoxon test $P < .001$).

Health confidence scores in the screened population were greatly skewed toward high health confidence (Figure 1). The relationship between unmet social needs and low health confidence (score of less than 7) was further explored in a multivariate logistic regression analysis.¹⁴⁻¹⁶ Social determinants of health needs were categorized as follows: 0 ($n = 1427$), 1 ($n = 278$), 2 or more ($n = 254$). Bivariate analysis showed that patients with low health confidence were more likely to report one or more social need than those with high health confidence ($P < .001$, Table 3).

The adjusted multivariable model is shown in Table 4. In the adjusted model low health confidence was strongly associated with the number of needs ($P < .001$) and payer ($P = .002$) but not age, gender, race, ethnicity, or visit type (all P s $> .05$). Patients reporting social needs were more likely to report low health confidence compared with patients who did not report social determinants of health needs (1 vs 0 needs, odds ratio [OR] = 2.566; 95% CI 1.546-4.259; 2 or more vs 0 needs, OR = 6.201, 95% CI 4.022-9.561). Additionally, we tested for possible interactions between the 2 significant independent variables (needs and payer) and found the interaction effect to be nonsignificant ($P = .315$).

Discussion

We found that patients at our clinic reporting unmet social needs had lower mean health confidence scores than patients who did not report social needs. In multivariate analysis, there was a strong association between low health confidence and the number of needs reported, with the odds of low health confidence increasing with each additional social need. This latter finding is consistent with existing literature examining the relationship between specific social needs (ie, financial strain, social isolation) and health confidence or similar concepts.^{33,34}

Although it is intuitive that challenging life circumstances can hinder chronic disease management, the exact nature of the relationship between health confidence and social needs has not been defined. Do social needs directly decrease health confidence levels, or do systemic forces such as racism, wealth inequality, rurality, and so on, create social needs and diminish health confidence in parallel? If there is a causal link between social needs and low health confidence, what is the magnitude of this relationship and which social needs are most influential? The answers to these questions have significant implications for clinical care and chronic care management.

Based on our finding of a strong association between number of social needs and low health confidence among our patients, one may wonder if addressing social needs increases health confidence. Nguyen et al³⁵ found that community referrals to address social needs did not result in a change in self-efficacy among patients with diabetes, however a minority of the patients in the small sample made contact with the agency to which they were referred. Two out of 3 studies on a community health worker program found an increase in patient activation,³⁶⁻³⁸ but because the intervention included attention to social needs as well as traditional self-management support methods, it is not possible to determine which aspects of the program were responsible for the change in patient activation. Further research is needed looking at changes in health confidence following resolution of social needs, without additional self-management support programming.

Table 1. Characteristics of Quality Improvement Project Population.

Characteristic	Eligible for Screening but Not Screened, n (%)	Screened Population, n (%)	P (Screened vs Unscreened)
Total	3065	2018	
Number of needs, all screened			
No needs	n/a	1477 (73.19)	
≥1 need		541 (26.8)	
Number of needs, those who completed social needs screen and health confidence	n/a	1952	
No needs		1419 (72.7)	
≥1 need		533 (27.3)	
Visit type			
Adult wellness visit	1715 (55.95)	722 (35.78)	<.0001
New adult patient visit	959 (31.29)	1138 (56.39)	
Pediatric wellness visit	286 (9.33)	101 (5.00)	
New pediatric patient visit	105 (3.43)	57 (2.82)	
Payer			
Commercial	2188 (71.39)	1682 (83.35)	<.0001
Medicare	383 (12.50)	141 (6.99)	
Medicaid	348 (11.35)	117 (5.80)	
Other	146 (4.76)	78 (3.87)	
Age (years)			
0-17	373 (12.17)	152 (7.53)	<.0002
18-64	2307 (75.27)	1722 (85.33)	
65+	380 (12.40)	141 (6.99)	
Race			
White	1781 (58.28)	1261 (62.27)	<.008
Black/African American	434 (14.20)	220 (10.86)	
Asian	105 (3.44)	72 (3.56)	
American Indian	10 (0.33)	2 (0.10)	
Native Hawaiian	7 (0.23)	4 (0.20)	
More than one race	84 (2.75)	43 (2.12)	
Other	374 (12.24)	235 (11.60)	
Unknown	261 (8.54)	188 (9.28)	
Ethnicity			
Hispanic	423 (13.80)	271 (13.43)	.13
Non-Hispanic	2417 (78.86)	1566 (77.60)	
Unknown	225 (7.34)	181 (8.97)	

Abbreviation: n/a, not applicable.

Our results suggest that there is an association between number of unmet social needs and low health confidence, and a better understanding of this relationship may be useful in clinical practice both at the population and individual patient level. If addressing social needs can substantially improve health confidence, incorporating attention to social needs into chronic disease management should improve quality and reduce cost. If future research finds that certain social barriers impact the ability to manage chronic conditions more than others, social needs screening could help identify candidates for more intensive care team services. Clinical teams with limited social work or care management resources but a desire to attend to their patients' life circumstances could focus their efforts on the social issues with the greatest effect on health confidence.

In individual patient encounters, our findings highlight that identifying unmet social needs should prompt a broader discussion of barriers to self-management and use of shared decision making. In clinical practice, providers can find themselves torn between guideline-concordant care and creating individualized care plans that patients can realistically carry out (ie, minimally disruptive medicine).³⁹ A proven association between increasing social need and lower health confidence could justify prioritization of social concerns over guideline concordant care.

Knowing that high health confidence is associated with lower cost and higher quality, health confidence scores may be used in research and evaluation to measure the impact of social needs screening and referral programs like the one described here. Although disease-oriented outcomes for

Table 2. Characteristics of Patients With and Without Social Needs.

Characteristic	No Need Identified, n (%)	At Least One Need Identified, n (%)	P
Total	1427	532	
Visit type			
Adult wellness visit	533 (37.4)	167 (31.4)	.0106
Pediatric wellness visit	80 (5.6)	22 (4.1)	
New patient visit (adult/peds)	814 (57.0)	343 (64.5)	
Payer			
Commercial	1216 (85.2)	413 (77.6)	.0002
Medicare	87 (6.1)	45 (8.5)	
Medicaid	68 (4.8)	50 (9.4)	
Other	56 (3.9)	24 (4.5)	
Age (years)			
0-17	118 (8.3)	36 (6.8)	.5139
18-64	1209 (84.1)	457 (85.9)	
65+	97 (6.8)	39 (7.3)	
Gender			
Male	801 (56.1)	299 (56.2)	.8298
Female	625 (43.8)	233 (43.8)	
Race			
White	936 (65.59)	306 (57.5)	<.0001
Black/African American	119 (8.34)	94 (17.7)	
Asian	53 (3.7)	15 (2.8)	
American Indian	3 (0.2)	3 (0.6)	
Other/unknown	316 (22.1)	114 (21.4)	
Ethnicity			
Hispanic	193 (13.5)	69 (13.0)	.8919
Non-Hispanic	1108 (77.7)	413 (77.6)	
Unknown	126 (8.8)	50 (9.4)	

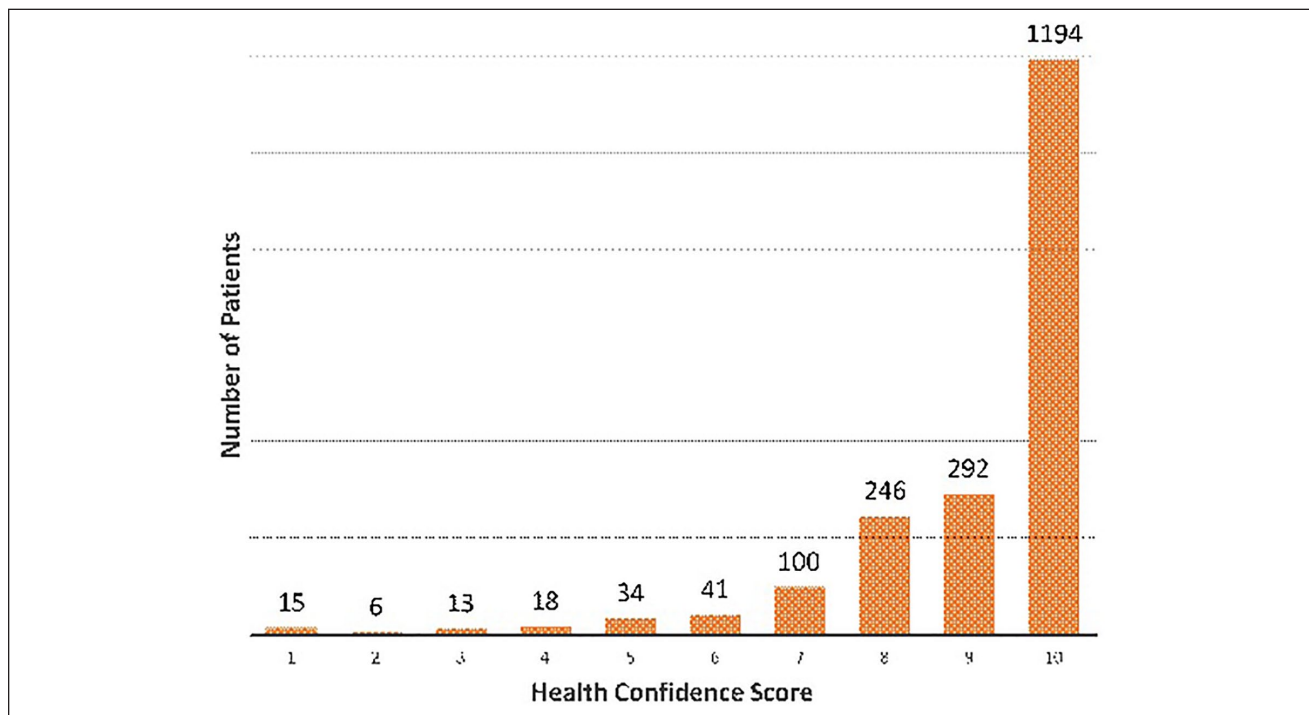


Figure 1. Distribution of health confidence scores among screened population.

Table 3. Number of Social Needs by Health Confidence Score.

Number of Social Needs	Low Health Confidence, n (%)	High Health Confidence, n (%)	Total, n (%)
0	50 (39)	1377 (75)	1427 (73)
1	25 (20)	253 (14)	278 (14)
2+	52 (41)	202 (11)	254 (13)
Total	127 (100)	1832 (100)	1959 (100)

Table 4. Multivariable Model of Low Health Confidence.

Variable	Coefficient (SE)	Odds Ratio (95% CI)	P
Intercept	-1.990 (0.432)	—	—
Number of needs (reference: 0)			
1 need	0.020 (0.159)	2.566 (1.546-4.259)	<.0001
2 needs	0.902 (0.139)	6.201 (4.022-9.561)	
Age (years)	-0.004 (0.008)	0.996 (0.980-1.012)	.639
Gender (reference: male)	-0.125 (0.195)	0.883 (0.602-1.295)	.524
Race (reference: white)			
Asian	0.057 (0.378)	1.427 (0.527-3.863)	.2003
Black	0.236(0.227)	1.707 (1.007-2.894)	
Other	0.005 (0.233)	1.354 (0.789-2.324)	
Hispanic ethnicity	0.212 (0.154)	1.529 (0.836-2.798)	.169
Payer (reference: private/health maintenance organization)			
Medicaid	0.132 (0.322)	1.740 (0.831-3.641)	.002
Medicare	0.898 (0.309)	3.744 (1.788-7.839)	
Other	-0.608 (0.411)	0.830 (0.288-2.398)	
Visit type (reference: pediatric)			
Adult	0.414 (0.265)	3.561 (0.866-14.645)	.184
New patient	0.441 (0.251)	3.659 (0.918-14.581)	

such programs are important to look for, they can take months or years to change and only capture one dimension of overall health in the face of an intervention that may have complex and unanticipated results.

There are several limitations to our project. As a quality improvement project in a single urban academic family medicine residency clinic, our findings are not generalizable. Additionally, screening was performed during new patient visits and annual exams. Assuming that attending to preventive care requires increased self-management capacity as compared with seeking acute care, this may have biased our results toward a population with higher health confidence. Our results were highly skewed toward high confidence (≥ 7), and as such the median difference of 9 versus 10 in health confidence scores between those without or with unmet social needs is difficult to interpret clinically as health confidence scores of 9 and 10 are both considered to be very confident.¹⁶ Furthermore, screening via paper form may have disproportionately underscreened those with limited literacy. Because we were only accepting small volumes of new Medicaid patients during the screening period, targeting new

patients likely resulted in higher rates of screening commercially insured patients than if we had screened all patients. Although we completed multivariate modeling to identify the role of potentially confounding factors such as race, gender, or insurance type, this analysis did not include a measure of medical complexity. Prior research has shown that social determinants of health are associated with health care utilization, one facet of medical complexity.^{40,41} It is possible that the association we found between social needs and health confidence is influenced or possibly driven by a patient's medical complexity. Our analysis is unable to determine if and to what extent medical complexity is related to social needs and health confidence.

Results of this quality improvement project suggest that patients with unmet social needs may have decreased perceived ability to manage health problems and the likelihood of this increases with the number of unmet social needs. Further study is needed to determine if this information is replicable and generalizable. If so, the relationship between health confidence and social needs may be used to inform chronic disease management programs.

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Supplemental Material

Supplemental material for this article is available online.

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