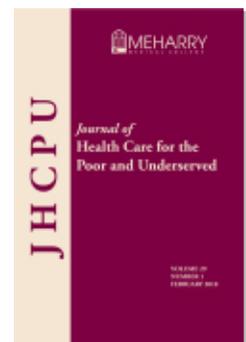Higher Perceived Clinic Capacity to Address Patients' Social Needs Associated with Lower Burnout in Primary Care Providers

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Higher Perceived Clinic Capacity to Address Patients' Social Needs Associated with Lower Burnout in Primary Care Providers

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Abstract: **Purpose**. Primary care physicians (PCP) experience high rates of professional burnout. These symptoms may be magnified in underserved populations. This study explores relationships between clinic capacity to address patients' social needs (SN) and PCP burnout. **Methods**. We conducted a cross-sectional survey of PCPs from three delivery systems in San Francisco. Surveys included three components of burnout, measured by the Maslach Burnout Inventory (MBI) and a four-item instrument exploring attitudes, confidence, individual skills and organizational capacity to address patients' SN. **Results**. Provider perception of higher clinic capacity to address patients' SN was the strongest independent predictor of lower burnout. Providers who perceived high clinic capacity and resources to address SN reported significantly greater professional efficacy (p < .01), lower emotional exhaustion (p < .05), and lower cynicism (p < .05). **Conclusions**. Provider perceptions of greater clinic capacity to address SN are significantly associated with lower burnout. Devoting organizational resources to address SN may reduce PCP burnout.

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Primary care physicians have a burnout rate almost double that of the general working population. Across medical specialties, clinicians practicing in primary care share the highest risks of burnout.[1] Primary care provider (PCP) burnout can manifest as decreased empathy and compassion, medical errors, poor communication and depression.[2] Stressed, burned out, or dissatisfied physicians report a greater likelihood of making errors and providing suboptimal patient care,[3] and they are more likely to abandon the medical profession.[4] Physician turnover is financially costly for organizations.[5] Estimates of recruitment and replacement costs for individual family physicians, general internists, and pediatricians range from $236,000 to $264,000.[6,7] Moreover, primary care provider turnover can lead to a vicious cycle of increased PCP burnout as more demands are placed on remaining PCPs in a clinical practice setting.[8]

Increased awareness of the dangers of burnout and the importance of PCP well-being is reflected the Quadruple Aim of health care transformation, which not only includes improving health, improving patients' experience of care, and reducing costs, but also improving the well-being and satisfaction of the clinical care team.[9,10] Optimizing and delivering high-quality patient care requires a motivated and engaged health care workforce.

In safety-net settings, the challenges facing primary care PCPs can be particularly pronounced. Patients' social needs, defined as social and economic hardships—such as low literacy, unemployment, and poor housing quality and availability—can increase the overall workload of PCPs working in underserved settings by worsening patients' health conditions and creating barriers to both care access and treatment adherence.[8]

Research demonstrates that the workplace environment, team culture, and practice transformation are associated with burnout and low morale.[11–14] Primary care physicians may address social needs by linking patients with existing community-based resources. Evidence suggests that providers in settings with the capacity to address patients' social and economic determinants of health have more positive experiences with care delivery.[15–17] Despite these findings, no prior studies have examined specifically whether PCP perceptions of personal and clinic capacity to address SN are associated with provider burnout. We hypothesized that the higher perceived ability to address patients' SN would be associated with lower burnout.

Methods

From October 2014–February 2015, we conducted a cross-sectional, self-administered survey of primary care providers (PCPs) in San Francisco. The protocol was approved by the UCSF Committee on Human Research (11-08048).

Participants. The study included PCPs in 19 clinics providing comprehensive primary care services in three different health systems in San Francisco. Ten clinics were in the San Francisco Health Network, the county health department-administered primary care system, six in the University of California, San Francisco health system, and three

in the Veterans Affairs (VA) health system. Five of the practices were residency program teaching clinics. All PCPs (physicians, resident physicians, nurse practitioners, and physician assistants) at the clinics were eligible for the study.

Measures. Survey measures included three components of burnout as measured by the Maslach Burnout Inventory (MBI) General Survey: a six-item subscale on professional efficacy (Cronbach alpha from study sample = 0.73), a five-item subscale on emotional exhaustion (Cronbach alpha = 0.93), and a five-item subscale on cynicism (Cronbach alpha = 0.85).[18] Burnout is characterized by low professional efficacy, high exhaustion, and high cynicism.[18] The professional efficacy subscale produces a total score ranging from 0–36, where 36 is the highest level of professional efficacy, and a score of 23 or lower is classified as low professional efficacy. The exhaustion subscale produces a total score ranging from 0–30, where 30 is the highest level of exhaustion, and a score of 16 or higher is classified as high exhaustion. The cynicism scale produces a total score ranging from 0–30, where 30 is the highest level of cynicism, and a score of 11 or higher is classified as high cynicism.

Given the lack of validated instruments to assess PCP perceptions of resources related to addressing SN in primary care settings, we developed a four-item instrument to capture this construct. We adapted a behavioral framework developed by Roelens et al.[19,20] and drew two items from a national survey conducted for the Robert Wood Johnson Foundation with over 1,000 primary care providers on physicians' beliefs and confidence in addressing social needs in clinical settings.[21] In keeping with our theoretical framework of an adapted behavioral model,[16] in which PCP behaviors around SN may change based on a combination of factors, including knowledge, attitudes, confidence, skills and clinic capacity (Figure 1), we added two additional questions related to individual capacity (i.e., skills) and organizational capacity (i.e., clinic resources) to address SN (Appendix 1). All items were reviewed by a team of six health care professionals and researchers, and refined for clarity and intended meaning through piloting the survey with a subset of PCPs.

The study team piloted the four item-instrument derived from the above framework with PCPs and experts in the field and modified the instrument using an iterative process that incorporated their feedback. The final four items in this construct included: a) PCP attitudes towards addressing social needs in clinical settings; b) PCP confidence in screening for social needs; c) PCP skills in addressing social needs; and d) perceived clinic-level resources available to address patient social needs. Response options for each item ranged from 1 (strongly disagree) to 10 (strongly agree) (Table 1). Factor analysis was used to determine if the four items loaded onto a single scale construct. (Also see Table 2.)

We categorized respondents as resident physicians versus non-resident PCPs (including non-resident physicians, nurse practitioners, and physician assistants). Additional covariates included the following respondent characteristics: hours or shifts worked per week (one to two half days per week; three to five half days per week; six or more half days per week), tenure (less than a year; one to five years; longer than years), and system (county-administered, university or VA).

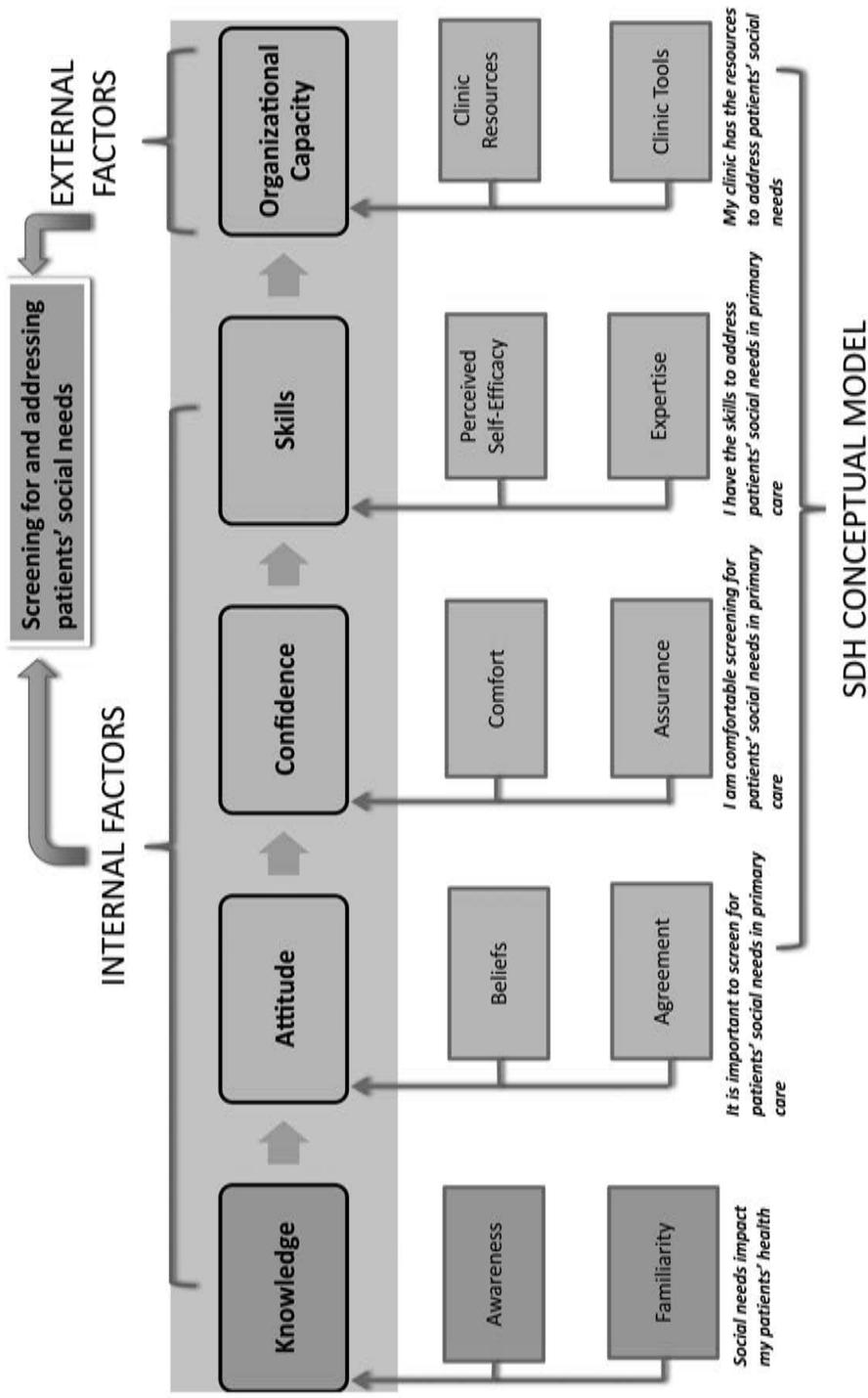**Survey administration**. Primary care providers received a link to a web-based survey

Figure 1. Conceptual Model for PCP Perceptions of Capacity to Address Patients' Social Needs
Source: Olayiwola et al. Adapted from Roelens et al BMC Public Health 2006

Table 1.

PCP CHARACTERISTICS

	PCPs (n=359)
Number of half days of patient care/week, n (%)	
1–2 half days	55.5% (198/357)
3–5 half days	30.0% (107/357)
6 or more half days	14.6% (52/357)
Tenure, n (%)	
Less than 1 year	18.7% (67/358)
1 to 5 years	45.5% (163/358)
More than 5 years	35.8% (128/358)
System, n (%)	
County-administered system	54.3% (195/359)
University system	32.0% (115/359)
VA system	13.6% (49/359)
Clinician type, n (%)	
Non-resident physician/attending	48.5% (174/359)
Resident physician	39.3% (141/359)
Nurse Practitioner / Physician Assistant	12.3% (44/359)

Table 2.

PCP REPORTED CAPACITY TO ADDRESS SOCIAL NEEDS AND BURNOUT

	PCPs (n=359)
Clinician perceptions of capacity to address patients' social needs*	
Believe that addressing social needs is an important role for primary care, mean (SD)	9.26 (1.20)
Comfortable in asking about social needs, mean (SD)	8.67 (1.56)
Have skills in addressing social needs, mean (SD)	6.92 (2.26)
Clinic resources available to address social needs, mean (SD)	6.52 (2.68)
Maslach Burnout Inventory**	
Professional efficacy sum score, mean (SD)	27.87 (5.61)
Emotional exhaustion, mean (SD)	15.86 (7.47)
Cynicism sum score, mean (SD)	9.67 (6.98)

Notes:
*Response options range from 1= Strongly disagree to 10=Strongly agree
**Maslach Burnout Inventory: the professional efficacy subscale has a range of 0–36, where 36= high professional efficacy; the exhaustion subscale has a range of 0–30, where 30=high emotional exhaustion; and the Cynicism subscale has a range of 0–30, where 30=highest cynicism. Burnout is characterized by low professional efficacy, high emotional exhaustion, and high cynicism

and up to three additional email reminders to complete the survey. Respondents to the survey were entered in a drawing for $25 gift cards.

Data analysis. Data analyses were conducted using Stata version 13.0[22] and SPSS version 22.[23] Descriptive statistics examined item and scale distributions. We examined PCP characteristics and social needs items as predictors of each component of burnout (professional efficacy, emotional exhaustion, and cynicism) using Generalized Estimating Equation (GEE) models to account for clustering by clinics. After controlling for PCP characteristics, each of the four social needs items was first examined in separate GEE models to assess the association with burnout. The four social needs items were then simultaneously entered in a multivariable GEE model to assess independent associations with each dimension of burnout. Given the possibility that residents and providers limited to working one to two half days per week could skew the results because of their unique clinical experiences or differences in panel sizes,[14] we conducted sensitivity analyses excluding each of these groups.

Results

Participant characteristics. All PCPs in the three health systems (n = 506) were invited to participate in the study and a total of 359 PCPs completed the survey (response rate 71%) (Table 1). Half of the respondents were non-resident physicians (49%), 39% were resident physicians (39%) and 12% nurse practitioners or physician assistants. About half (55.5%) provided patient care for one to two half-days per week; the remaining 44.5% had three or more half-days of patient care per week. Among non-resident physicians, 57.9% had three or more half-days of patient care per week. Most PCPs had been in practice for more than one year, with nearly 36% practicing for longer than five years. Fifty four percent of PCPs practiced in the county system, while 32% were in the university system, and 14% were in the VA system.

Social determinants of health and social needs. In the Social determinants of health (social needs) model (Table 2), PCPs reported high levels of confidence in asking about the social needs of their patients (mean 8.70 on 1–10 scale), and most believed that it is important to address social needs as part of primary care (9.35). However, respondents reported less confidence in their skills to address social needs (mean 6.96) and in clinic resources available to address social needs (mean 6.47). Social needs items were moderately and positively correlated, with the highest correlations between social needs importance and confidence asking about social needs (r=.48) and between skills and clinic resources to address social needs (r=.55), and the weakest associations between perception of clinic resources and belief in social needs importance (r=.16) and between perception of clinic resources and confidence asking about social needs (r=.17). Results of an exploratory factor analysis (EFA) suggested the four items did not load onto a single construct (data not shown). We therefore used each social needs item as a distinct predictor in the analysis.

Maslach Burnout Inventory (MBI). Respondents reported a mean professional efficacy score of 27.9, a mean emotional exhaustion score of 15.9, and a mean cynicism score of 9.67 (Table 2). Using established MBI cut points (≤23 for low professional efficacy, ≥16 for high emotional exhaustion, and ≥ 11 for high cynicism), 23.0% of

PCPs reached the threshold for low professional efficacy, 51.2% for high exhaustion, and 40.1% for high cynicism.

Predictors of burnout. In GEE models in which only covariates and a single social needs/SN item were included in each analysis, each of the four social needs/SN items was significantly associated with each component of burnout, with the exception of one marginally significant association (Table 3). Providers' strong beliefs in the importance of addressing social needs, higher comfort asking about social needs, and greater skills addressing social needs were significantly associated with lower reported levels of exhaustion and cynicism and higher levels of professional efficacy. Similarly, PCPs who perceived their clinic setting offered greater resources to address social needs also reported significantly lower exhaustion and cynicism and higher professional efficacy.

In multivariable GEE models including all four social needs items simultaneously, PCP perception of clinic capacity and resources to address social needs was the only one of the four social needs items to remain a significant predictor of burnout scores (Table 4). Primary Care Providers who perceived high clinic capacity and resources to address social needs reported significantly greater professional efficacy, lower emotional exhaustion, and lower cynicism. None of the other social needs items was independently associated with PCP burnout. Additional PCP characteristics associated with burnout included: the number of half days worked, length of tenure, system, and resident status. Compared with those working one to two half days, those working three to five half days reported higher burnout across all three areas, and those working 6 or more half days reported higher levels of exhaustion and cynicism. Residents reported higher

Table 3.

ADJUSTED UNIVARIATE SOCIAL NEEDS PREDICTORS OF PCP BURNOUT (N=347)

Clinician perceptions of capacity to address patients' social needs	Professional Efficacy		Emotional Exhaustion		Cynicism	
	B	95% CI	B	95% CI	B	95% CI
Belief that addressing social needs is an important role for primary care	.71^	.30 to 1.11	−.47‡	−.88 to −.06	−.61‡	−1.08 to −.14
Confidence in asking about social needs	.49^	.19 to .79	−.36+	−.79 to .07	−.61‖	−.99 to −.24
Skills in addressing social needs	.45^	.20 to .70	−.63^	−.88 to −.38	−.55^	−.85 to −.25
Clinic resources available to address social needs	.50^	.29 to .71	−.56^	−.85 to −.27	−.55^	−.82 to −.27

Notes:
*"B" are coefficients of linear regressions using GEE models accounting for clustering for clinic and adjusted for the following covariates (results not displayed): number of half days a week of patient care, tenure, system, and resident status. Each "B" coefficient represents a separate GEE analysis with inclusion of one social needs item.
+ = p <.10, ‡ = p < .05, ‖ = p<.01, ^ = p<.001

Table 4.

MULTIVARIATE SOCIAL NEEDS PREDICTORS OF PCP BURNOUT (N=347)

Variable	Professional Efficacy		Emotional Exhaustion		Cynicism	
	B	95% CI	B	95% CI	B	95% CI
Number of half days of patient care/week						
1–2 half days	Ref.		Ref.		Ref.	
3–5 half days	-1.99^	-2.87 to -1.11	4.86^	3.34 to 6.39	2.71^	1.36 to 4.06
6 or more half days	.12	-1.57 to 1.81	5.48^	2.86 to 8.11	3.43‖	1.46 to 5.40
Tenure						
Less than 1 year	Ref.		Ref.		Ref.	
1 to 5 years	-.07	-1.64 to 1.50	-2.76‖	-4.68 to -.83	-.73	-2.45 to 1.00
More than 5 years	.76	-1.08 to 2.59	-2.10‡	-4.25 to .04	.72	-.86 to 2.29
System						
County-administered system	Ref.		Ref.		Ref.	
University system	.77	-.92 to 2.47	-.21	-1.61 to 1.19	.13	-1.62 to 1.88
VA system	1.64‖	.58 to 2.70	-.59	-1.84 to .66	.71	-.47 to 1.88
PCP type						
Non-resident	Ref.		Ref.		Ref.	
Resident	-1.66+	-3.43 to .12	2.95‖	.87 to 5.04	4.18^	2.70 to 5.65
Clinician perceptions of capacity to address patients' social needs						
Belief that addressing social needs is an important role for primary care	.41	-.28 to 1.10	-.20	-.71 to .32	-.21	-.81 to .40
Confident in asking about social needs	.22	-.25 to .68	-.02	-.52 to .47	-.35	-.88 to .19
Skills in addressing social needs	.08	-.24 to .41	-.32	-.75 to .10	-.16	-.62 to .31
Clinic resources available to address social needs	.43‖	.15 to .71	-.41‡	-.82 to -.01	-.44‡	-.86 to -.03

Notes:
*"B" are coefficients of linear regressions using GEE models accounting for clustering by clinic. Covariates (displayed) included: number of half days a week of patient care, tenure, system, and resident status. All four of the social needs items were included as predictors in each GEE model.
+ = p <.10, ‡ = p < .05, ‖ = p <.01, ^ = p<.001

levels of exhaustion and cynicism and marginally lower levels of professional efficacy than non-residents. Primary care providers in the VA setting reported higher professional efficacy than PCPs in the County system. Finally, compared with PCPs newly employed in their clinic setting (less than one year), PCPs who had been working in their current clinic for one to five years reported lower exhaustion.

Aggregating individual PCP responses at the clinic level by measuring mean social needs scores at each clinic, mean scores for perceived social needs clinic resources ranged from 4.00 to 9.20, with an inter-quartile range across the 19 clinics of 4.8 to 8.5. Using clinics as the unit of analysis, there were moderate correlations between perceived resources for social needs and professional efficacy (r=.32), emotional exhaustion (r=−.47), and cynicism (r=−.26) (data not shown). These results indicate that clinics differ in how their PCPs together rate the resources for social needs at the clinic and that clinics that are perceived to have more social needs resources tend to have PCPs that experience less burnout.

After removing residents from the regression models, we found a virtually identical pattern of results for the association between clinic capacity and the three areas of burnout among non-resident clinicians. A similar pattern of results was found in a second sensitivity analysis after removing providers working only one to two half days (data not shown).

Discussion

Among the sample of PCPs we studied, PCP perceptions of greater clinic capacity to address social needs were significantly associated with lower burnout, including lower emotional exhaustion and cynicism and higher professional efficacy. Although PCP's beliefs, confidence, and self-rated skills around addressing social needs were associated with burnout when each item was tested individually, these associations were no longer present when PCP perception of clinic capacity to address social needs was included in the multivariate model. These findings suggest that the degree of burnout among PCPs is less related to differences in personal attributes and attitudes about social needs than to their perceptions of the practice organization's capacity to assist patients with social needs.

An estimated 30–65% of physicians in the United States reported experiencing burnout and 45% of physicians reported at least one symptom of burnout on the MBI in a large national sample,[1,7,24] The level of burnout among PCPs in our sample was similar to that found in national surveys. Consistent with previous literature,[25,26] residents in our sample report greater burnout across all three domains (professional efficacy, exhaustion, cynicism) than their non-resident counterparts.

The findings from this study may have implications for health care organizations in their pursuit of the Quadruple Aim, particularly those organizations caring for many patients facing social and economic adversity. Other reports have found that working in underserved settings contributes to stress and burnout[8] and have described methods to address burnout by improving PCP working conditions and teams, establishing institutional metrics for PCP satisfaction, lowering stress associated with documentation in electronic health records, promoting career development opportunities, and encourag-

ing self-care.[7] Our findings suggest that PCP burnout is also associated with providers' perception of clinic capacity to address patients' SN, which can include interventions to better connect medical and social service delivery.[27–31] Programs that bridge social and medical care services are increasingly encouraged by health professional organizations and adopted by safety-net clinical settings as one part of more comprehensive strategies to identify and address social determinants of health.[32–36] These include initiatives that connect patients with community agencies providing food, housing, vocational training, and other resources that help to reduce social and economic hardships.[37] Since provider burnout has substantial cost implications, future studies examining the return on investment of these kinds of social interventions should examine provider burnout impacts in addition to patient health and care costs.

This study had a number of strengths, including a fairly large sample size with a high response rate, and also the inclusion of multiple clinics in three different health systems. However, there were a few limitations. The four-item instrument that we developed to understand social needs, though partly derived from a previously used survey instrument, requires validation. Additionally, data were self-reported, and actual clinic capacity to address social needs may differ from PCP perception of capacity. For example, PCPs who have high burnout scores may give their clinics low ratings on capacity to address social needs as a result of a negative attitude about their workplace in general; it is possible that these do not reflect an objective difference in clinic capacity. However, the fact that we detected differences between clinics in cumulative mean scores of PCP perceptions of clinic capacity to address social needs suggests that these perceptions are not simply an expression of negative affect among individual PCPs divorced from real differences in the work environment between clinics. Future research should identify objective measures of clinic capacity for addressing social needs (e.g., measuring the number of social service and behavioral health support staff relative to PCPs; or qualitatively exploring how PCPs define and assess social needs capacity) and investigate whether these more objective measures correlate with PCP perception of clinic capacity to address social needs. We were unable to compare characteristics of non-respondents to the study; however, our response rate (71%) is substantially higher than response rates for other physician surveys (54%).[38] Finally, causal inferences should be made with caution due to the cross-sectional nature of this study.

Our study is the first to our knowledge to examine relationships between perceived capacity to address social needs and PCP burnout, an important indicator of professional well-being that powerfully impacts patients' experiences of care.[39] Primary care practices across the country are beginning to incorporate PCP and staff experience as key quality metrics and actively exploring strategies to improve PCP and staff morale and reduce burnout.[7,12] It is also important to further explore what role primary care settings and providers should play in addressing patients' social needs and social determinants of health, whether at the individual patient level or social-environmental level, and how they can best leverage local partnerships with public health and social service agencies. While further investigation is needed to better understand the relationships between clinic capacity to address social needs and burnout, our findings suggest that organizational and clinic-level investments in resources to assist PCPs in addressing patients' social needs may influence professional well-being.

Acknowledgments

Appendix 1: Survey Questions on Social Needs

Addressing social needs: This section is designed to understand your ability to address the social needs of your patients. Social needs include housing security and habitability; food security; financial assistance and employment benefits; transportation; childcare; utility assistance; and legal services.

	Strongly disagree									Strongly agree
I am comfortable asking about patients' social needs (e.g., housing, food, childcare) as part of their primary care.	1	2	3	4	5	6	7	8	9	10
It is as important to address patients' social needs as it is to address their medical needs in primary care.	1	2	3	4	5	6	7	8	9	10
I have the skills to address the social needs of patients through connecting them with resources, dedicated staff, or tools.	1	2	3	4	5	6	7	8	9	10
My clinic has the resources, such as dedicated staff, community programs, resources or tools to address patients' social needs.	1	2	3	4	5	6	7	8	9	10

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