Social Risk Factors and Desire for Assistance Among Patients Receiving Subsidized Health Care Insurance in a US-Based Integrated Delivery System

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Conflicts of interest: Salene Jones received funding from Microsoft for an unrelated project. All other authors report none.

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ABSTRACT

PURPOSE Because social conditions such as food insecurity and housing instability shape health outcomes, health systems are increasingly screening for and addressing patients' social risks. This study documented the prevalence of social risks and examined the desire for assistance in addressing those risks in a US-based integrated delivery system.

METHODS A survey was administered to Kaiser Permanente members on subsidized exchange health insurance plans (2018-2019). The survey included questions about 4 domains of social risks, desire for help, and attitudes. We conducted a descriptive analysis and estimated multivariate modified Poisson regression models.

RESULTS Of 438 participants, 212 (48%) reported at least 1 social risk factor. Housing instability was the most common (70%) factor reported. Members with social risks reported more discomfort being screened for social risks (14.2% vs 5.4%; $P = .002$) than those without risks, although 90% of participants believed that health systems should assist in addressing social risks. Among those with 1-2 social risks, however, only 27% desired assistance. Non-Hispanic Black participants who reported a social risk were more than twice as likely to desire assistance compared with non-Hispanic White participants (adjusted relative risk [RR] 2.2; 95% CI, 1.3-3.8).

CONCLUSIONS Athough most survey participants believed health systems have a role in addressing social risks, a minority of those reporting a risk wanted assistance and reported more discomfort being screened for risk factors than those without risks. Health systems should work to increase the comfort of patients in reporting risks, explore how to successfully assist them when desired, and offer resources to address these risks outside the health care sector.

VISUAL ABSTRACT

Ann Fam Med 2022;20:137-144. https://doi.org/10.1370/afm.2774

INTRODUCTION

Given the increasing recognition that social conditions shape health outcomes, health systems in the US are more frequently screening for and addressing social risk factors, such as housing instability, food insecurity, and limited access to transportation.[1,2] The World Health Organization defines social determinants of health[3] as "conditions in which people are born, grow, work, live, and age." These factors can have a profound effect on physical and mental health, health care effectiveness, and social welfare.[1,4-8] Health system interventions to address social risk factors have improved health outcomes and may reduce health care utilization and associated costs.[9-12]

The majority of patients surveyed in primary care and acute care settings report that screening for social risks is an acceptable activity for health systems.[4,5] Studies across diverse health care settings have shown, however, that despite patients' general acceptance of screening, individuals who report having social risks often decline assistance.[6] For example, in a recent community health center survey, over 90% of patients reported at least 1 social risk, but only 20% wanted assistance from their health center.[6] This discrepancy could mean that health system investments and strategies to screen for social risks or interventions might not be designed nor aligned with patients' preferences or priorities.[6]

It is unclear how desire for assistance varies by type of risk, demographics, or other factors. Prior research suggests that experiences with health care discrimination are negatively associated with screening acceptability and desire for assistance.[1,5] In addition, trust in one's physician might distinguish those who have social risks and desire for assistance from their health care providers, since trust has also been found to affect patients' willingness to seek care, remain with a physician, and find screening for social risks acceptable.[5,10,11] Identifying patient factors that distinguish those with risk and desire for assistance from those without could better guide the use of targeted social risk interventions.

We analyzed results of a survey from a subpopulation of Kaiser Permanente (KP) members with federally subsidized health insurance receiving care in KP's Southern California region to: (1) document the prevalence of social risk across 4 domains (housing, food, transportation, and utilities); (2) explore the relationship between existing social risks and desire for assistance; and, (3) test associations between patient factors (eg, demographics, attitudes) and social risks and desire for assistance.

METHODS

KP's Social Needs Network for Evaluation and Translation designed and conducted a survey as part of a quality improvement initiative during 2018-2019.[13] The KP Washington Research Institute's Institutional Review Board approved the survey, classified as not human subjects research given the primary goal of quality improvement.

Survey Participants

Survey participants were members of KP Southern California who received federal health insurance subsidies, such as co-insurance or co-payments, through the California state health care insurance exchange. These members had incomes that were too high for them to qualify for government- and/or community-based financial assistance programs such as Medicaid. They were eligible for subsidized insurance under the Affordable Care Act in 2010 if their income ranged between 100 and 400% of the federal poverty level and they did not have affordable employer-sponsored coverage (affordability calculations based on income level).[12] Survey participants were at least 18 years of age as of September 1, 2018 and had been continuously enrolled at KP for at least 9 months. The sample included individuals whose preferred spoken or written language was English or Spanish.

Survey Procedures

The initial version of the survey was revised with cognitive testing and expert input before the final survey was deployed. The survey was administered from November 2018 through February 2019 by paper via mail or by telephone and only in English or Spanish, depending on the individual's preference. The recruitment letter included a $2 pre-incentive. A $20 cash incentive was mailed to those who completed at least 50% of the survey items. Participants could skip questions they did not want to answer. We used block group randomization based on language (English or Spanish), age, and sex.

Measures

We analyzed a subset of the domains in the survey including social risks (eg, housing, transportation), health outcomes (eg, self-rated health), and attitudes (eg, trust in one's physician, perceptions of health system role in addressing social risks). The Social Needs Network for Evaluation and Translation survey included established, validated scales, and new questions developed by the research team.[5] The survey methods and social risk measures of psychometric properties, and characteristics of survey respondents and non-respondents, are described in detail elsewhere.[14] Measures used in this analysis are included in the Supplemental Appendix.

Sociodemographics

We obtained demographic information from the patient's electronic health record. Demographics included sex (male/female); race/ethnicity (non-Hispanic Black/African American, Hispanic/Latino, non-Hispanic White, non-Hispanic Other); preferred spoken language (English or Spanish), and years of education (less than 12 years or 12 or more years) derived from the American Community Survey (a survey conducted by the US Census Bureau).

We also included a validated neighborhood deprivation index.[15] This neighborhood deprivation index is a measure from the American Community Survey comprised of data reflecting education, income, poverty, employment, housing, and occupation indicators. Duration of patient's KP membership was also collected.

Health

We measured self-reported general health using an established 5-point Likert scale single item question that was dichotomized as good/very good/excellent vs poor/fair.[16]

Attitudes

We included items that assessed perspectives and opinions on health care. To measure trust in provider, we used the Consumer Assessment of Healthcare Providers and Systems on a scale of 1 (not at all) to 10 (completely) that was collapsed into 3 categories based roughly on equal-sized tertiles: completely (10), high (8-9), and medium-to-low (1-7) trust.[17] We also included 2 questions adapted from the Social Interventions Research and Evaluation Network[5,14,18] to measure appropriateness of social risk screening by the health system and comfort with screening by domain based on 5-point Likert scales ranging from appropriate/very comfortable to very inappropriate/very uncomfortable.[5,19,20]

For the analysis, we collapsed domain-specific comfort with screening as a binary variable (comfortable with any domain vs not comfortable). We also assessed perspective

on the role of the health care team (referred to in this article as the health system) in addressing social risks. These items included participants' views on the health system's role of being aware that a patient is struggling with basic needs, connecting patients with community programs to assist with basic needs, offering medical care that acknowledges the basic needs a person struggles with, and funding community-based programs to assist with basic needs.

Social Risks

We focused on material needs as a subset of social risk factors using items from the Accountable Health Communities instrument developed by the Centers for Medicare and Medicaid Innovation.[21,22] We focused on 4 social risk domains: housing-related, food insecurity, trouble paying for utilities, and transportation difficulties.

For the analysis, we used a composite for housing-related social risks and food insecurity. Each participant was asked if they had experienced any of the 4 social risk factors within the past 12 months. A positive response to any item within each domain was considered indicative of a risk.[23]

Desire for Assistance with Social Risks

One survey item, developed by Social Interventions Research and Evaluation Network, characterized whether patients wanted assistance with 1 or more of the social risks they identified. An affirmative response in any risk domain was categorized as a desire for assistance.

Statistical Analysis

To assess factors associated with social risk, we compared differences in patient characteristics (eg, sociodemographics, health, and attitudes), between participants who did and did not report any social risk factor. Comparisons are presented as means and percentages with P values from χ^2 tests. We also assessed each risk factor (housing, food, utility, and transportation) and calculated the percentage of participants who fell into 3 mutually exclusive categories: (1) reported social risk and desired assistance; (2) reported risk but desired no assistance; and (3) did not report any social risk.

We estimated multivariable modified Poisson regression models where the dependent variable was an indicator for the presence of a social risk, and independent variables were the patient sociodemographics, health, and attitude measures described above.[24] We reported relative prevalence.

To assess the factors associated with desire for assistance among those with risks, we calculated the percentage of participants with a risk factor and the fraction of those that desired assistance. We restricted the sample to participants with any social risk and estimated modified Poisson models where the dependent variable was a desire for assistance and independent variables were patient sociodemographics, health, and attitudes. All estimates are presented with 95% CIs and 2-sided P values at the 5% level. All analyses were conducted using SAS software version 9.4 (SAS Institute Inc).

RESULTS

Prevalence of Social Risks and Relation to Sociodemographics and Health

Of 1,008 randomly-selected KP members who met inclusion criteria and were invited to participate, 450 filled out the survey (45.0%). Responders and non-responders did not significantly differ in any sociodemographic variables, except sex; females were more likely to respond.[14] In the analyses, we included 438 participants who had complete data (Table 1). The study population was racially and ethnically diverse (46.4% non-Hispanic White), English-speaking (84.0%), female (56.2%), and aged 45 years or older (56.4%). Of all participants, 212 (48.6%) reported at least 1 social risk factor. Table 1 shows that patients with a social risk factor were similar in age, sex, race and ethnicity, language, and duration of KP membership to those without. Participants with any social risk factor, however, were more than twice as likely to report having fair or poor health compared with those having no social risk factors (21.0% vs 9.8%; $P = .001$).

A large majority of both groups (90.1% with social risks vs 89.3% without social risks; $P = .79$) said the health system should play some role in helping people with social risks (Table 1). Both groups also had similar recommendations for specific actions the health system should take. Roughly one-half of each group said the health system should know if a patient is struggling with social risks, connect people with community programs, and offer medical care that is informed by patient social risks. Fewer said the health system should provide financial support to community programs that help people address basic needs. See Table 1 for data.

Relationships Between Social Risks and Desire for Assistance

Table 1 shows that a majority (approximately 60%) of participants in both groups believed social risk screening was very or somewhat appropriate while a minority (less than 16%) thought it was very or somewhat inappropriate. Although most (at least 85%) participants in both groups reported no discomfort with screening for any of the social risk domains, those with social risks were 3 times more likley to be uncomfortable with screening.

Table 2 shows the prevalence of social risks in the study population. Housing instability was the most prevalent risk, indicated by 34%. Figure 1 focuses on the desire for assistance among 212 participants who reported any social risk. Among those who had 1 or more social risk, 70% had housing instability, 49% food insecurity, 14% utility service issues, and 20% had a lack of transportation (Figure 1). Among participants with each risk factor, however, only a minority desired assistance. For example, more participants desired assistance for housing instability than any other risk, but only 10% of participants desired housing assistance compared with the 60% who indicated a housing need but expressed no desire for assistance. The desire for assistance increased with the number social risks present. Among participants with 1

or 2 social risks, only 27% desired assistance compared with 51% of those with 3 or 4 social risks.

Associations of Patient Factors With Social Risks and Desire for Assistance

Similar to the bivariate analyses, multivariate analyses found that patients in poor/fair health were more likely to report any risk factor than were patients in good/excellent health (adjusted relative risk [aRR] = 1.54, $P = .001$; Table 3). Those who were uncomfortable with risk screening were more likely to report a social risk factor than were people who reported no discomfort (aRR = 1.57, $P = .01$). Patients who reported high levels of trust in their health care providers were more likely to report a social risk compared with those having complete trust (RR = 1.47, 95% CI, 1.3-1.9).

Compared with non-Hispanic White patients who reported a social risk, non-Hispanic Black patients who reported a social risk were more than twice as likely to desire assistance (RR = 2.23, 95% CI, 1.29-3.84). Compared with patients with social risk who reported that screening was appropriate, those who reported that screening for social risk was inappropriate were less likely to desire assistance (RR = 0.45, 95% CI, 0.21-0.97).

DISCUSSION

In this survey of social risks and desire for assistance among members of an integrated health system who received federally subsized health insurance, we found that patients who reported social risks were similar demographically to those without, but were twice as likely to report having fair/poor health. No sociodemographic factors were associated with social risk. Previous research in federally qualified health centers suggested several sociodemographic factors do differentiate among those with and without social risk.[25] It may be that our participants were more sociodemographically homogenous.

Although no sociodemographic differences were found to detect those with social risks, some differences emerged about comfort in being screened for social risk. Possibly a byproduct of systemic and structural racism leading to distrust, our results revealed that non-Hispanic Black participants who had social risks were less comfortable with screening than non-Hispanic White participants and those without social risks.[26] This finding warrants careful attention, training of clinicians to explore unconscious bias, and system-level culture change.[27,28]

Consistent with prior research, a majority of participants found screening for social risks appropriate for a health system, and those individuals were more likely to desire assistance.

Table 1. Comparison of Patient Factors by Those With Any Social Risk and Those Without

Patient Factors	Overall (N = 438)	Any Social Risk (n = 212)	No Social Risk (n = 225)	*P* Value
Sociodemographics				
Age category, No. (%), y				
18-26	84 (19.2)	48 (22.5)	36 (16.0)	.24
27-44	107 (24.4)	52 (24.4)	55 (24.4)	
45-61	89 (20.3)	37 (17.4)	52 (23.1)	
≥62	158 (36.1)	76 (35.7)	82 (36.4)	
Sex, No. (%)				
Female	246 (56.2)	127 (59.6)	109 (52.9)	.16
Male	192 (43.8)	86 (40.4)	106 (47.1)	
Race/Ethnicity, No. (%)				
American Indian, Alaska Native	3 (0.8)	0 (0.0)	3 (1.6)	
Asian, Pacific Islander	56 (15.6)	29 (17.1)	27 (14.4)	
Non-Hispanic Black, African American	14 (3.9)	10 (5.9)	4 (2.1)	.16
Hispanic, Latino	114 (31.8)	57 (33.5)	57 (30.3)	
Non-Hispanic, Multiple	5 (1.4)	3 (1.8)	2 (1.1)	
Non-Hispanic White	166 (46.4)	71 (41.8)	95 (50.5)	
Missing	80 (18.3)	43 (20.2)	37 (14.2)	
Preferred spoken language, No. (%)				
English	368 (84.0)	175 (82.2)	193 (85.8)	.30
Spanish	70 (16.0)	38 (17.8)	32 (14.2)	
Duration KP membership, No. (%), y				
<1	109 (24.9)	63 (29.6)	46 (20.4)	.10
1-2	138 (31.5)	69 (31.9)	70 (31.1)	
3-4	100 (22.8)	43 (20.2)	57 (25.3)	
≥5	91 (20.8)	39 (18.3)	52 (23.1)	
Education (census tract)				
Percent with <12 years, mean (SD) median	16.7 (13.9) 12.3	18.3 (15.1) 13.8	15.1 (12.5) 11.2	.059
Neighborhood Deprivation Index, mean (SD) median	0.08 (0.95) −0.14	0.19 (1.01) −0.07	−0.02 (0.89) −0.20	.042
Self-reported health, No. (%)				
Excellent/Very good/Good	368 (84.8)	166 (79.1)	202 (90.2)	.001
Fair/Poor	66 (15.2)	44 (21.0)	22 (9.8)	
Missing	4 (0.0)	3 (0.0)	1 (0.0)	

continues

KP = Kaiser Permanente.

Those with social risks, however, reported slightly lower levels of acceptability of screening, which differs from a prior survey study in a different population.[5] Our finding suggests that health systems should approach screening in a patient-centered and collaborative way to avoid unintended consequences, such as offending patients.[29,30] Health systems should provide universal information to all their patients about community resources that address specific social risk factors. Screening for social needs without the capacity to ensure referral and linkage to appropriate resources is ineffective and potentially unethical.[31] Health systems should clarify if assistance through community-resource linkages and medical financial assistance will be offered despite a person's ability to pay.

A majority of the participants felt that the health system had a role in assisting with social risks including both socially informed (eg, evening clinics) and socially targeted care (eg, resource referral programs).[32,33] Mounting evidence suggests a desire for health systems to be aware of social risks, through approaches such as universal screening, and to offer resources if available,[34] recognizing the limitations of the health system to resolve issues like housing instability. In our study, participants were split on whether providers should know about members' social risks, align members' risk with community resources, or fund community-based programs. More research is needed to understand the role of the health system and the link between social risk factors and health system social risk interventions.

Our study was designed to characterize the social risk factors of individuals who obtained subsidized health insurance through a state insurance exchange. Little research has explored the social risks of this low-income subgroup of individuals. The survey also had limitations. Sociodemographic information was collected through administrative data and not validated through self-report, and there was a large proportion of missing race/ethnicity data. The sample size was small and the number of Black participants was particularly small. Even though Black participants reported less comfort with screening than others, studies with larger samples of Black participants are necessary to confirm this association. We assessed participants' social risk factors, desire for assistance, and perceptions about the role of the health system concurrently using self-report, which limits our ability to untangle

Table 1. Comparison of Patient Factors by Those With Any Social Risk and Those Without *(continued)*

Patient Factors	Overall (N = 438)	Any Social Risk (n = 212)	No Social Risk (n = 225)	*P* Value
Attitudes, No. (%)				
Trust in clinician				
Complete (10)	124 (29.0)	48 (23.5)	76 (33.9)	.06
High (8-9)	172 (40.2)	89 (43.6)	83 (37.1)	
Medium-Low (1-7)	132 (30.8)	67 (32.8)	65 (29.0)	
Missing	10 (2.3)	9 (4.2)	1 (0.4)	
Health care–based social risk screening				
Very/Somewhat appropriate	265 (61.2)	129 (61.1)	136 (61.3)	.78
Neither appropriate nor inappropriate	104 (24.0)	53 (25.1)	51 (23.0)	
Very/Somewhat inappropriate	64 (14.8)	29 (13.7)	35 (15.8)	
Missing	5 (1.1)	2 (0.9)	3 (1.3)	
Uncomfortable with social risk screening				
No	393 (90.3)	181 (85.8)	212 (94.6)	.002
Yes	42 (9.7)	30 (14.2)	12 (5.4)	
Missing	3 (0.7)	2 (0.9)	1 (0.4)	
Role of health care to help with basic needs				
Health care has a role	390 (89.7)	190 (90.1)	200 (89.3)	.79
Health care has no role	45 (10.3)	21 (10.0)	24 (10.7)	
Missing	3 (0.7)	2 (0.9)	1 (0.4)	
Role of health care: knowing a person is struggling with basic needs				
No	242 (55.6)	111 (52.6)	131 (58.5)	.22
Yes	193 (44.4)	100 (47.4)	93 (41.5)	
Missing	3 (0.7)	2 (0.9)	1 (0.4)	
Role of health care: connecting people with resources in the community				
No	218 (50.1)	103 (48.8)	115 (51.3)	0.60
Yes	217 (49.9)	108 (51.2)	109 (48.7)	
Missing	3 (0.7)	2 (0.9)	1 (0.4)	
Role of health care: offering care aligned with a person's needs				
No	242 (55.6)	111 (52.6)	131 (58.5)	.23
Yes	193 (44.4)	100 (47.4)	93 (41.5)	
Missing	3 (0.7)	2 (0.9)	1 (0.4)	
Role of health care: fund community program to help with basic needs				
No	308 (70.8)	143 (67.8)	165 (73.7)	.18
Yes	127 (29.2)	68 (32.2)	59 (26.3)	
Missing	3 (0.7)	2 (0.9)	1 (0.4)	

Table 2. Prevalence of Any Risk and Each Domain-Specific Risk (N = 438)

Risk	No. (%)	95% CI
Any risk	212 (48.6)	43.95-53.31
Housing instability	150 (34.2)	29.80-38.69
Food insecurity (1 missing)	105 (24.0)	20.02-28.03
Utility services issue	30 (6.8)	4.48-9.22
Lack of transportation	41 (9.4)	6.63-12.09

temporal issues and brings the threat of shared method variance. Our 1-time assessment of social risk limits our ability to explore whether there are differences in desire for assistance between those with temporary vs chronic challenges. Future studies might also investigate the level of urgency for assistance so that provision of assistance is timely and helpful.

Future studies should also explore the finding that individuals with 1 to 2 social risks were actually less likely to desire assistance (73%) from their health care provider, which differs from prior reports in a safety net clinic (53%).[26] There may be stigma associated with receiving assistance; health systems will need to consider how to offer assistance in a patient-centered manner that people find relevant and appropriate.[35] These people might also receive assistance from other community or government social service providers, and believe assistance from their health care providers would either be redundant or even make them ineligible to receive other assistance. Future research could also assess the actual uptake of assistance with social risks in addition to desire for help. Considering that some individuals may not be aware of how their health system can support them, future interventions might focus on a structured approach to support these individuals through education about how health care providers' both value knowing about and have ways to provide assistance for their social risks.

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Key words: delivery of health care; health equity; patient preferences; risk factors; social determinants of health

Submitted March 4, 2021; submitted, revised, September 18, 2021; accepted, September 28, 2021.

Funding support: The Social Needs Network for Evaluation and Translation (SONNET) is funded by Kaiser Permanente National Community Health.

Previous presentations: Issue Brief: A Survey of Basic Resource Needs in KP Members Receiving Subsidized Insurance Coverage: How do they think Kaiser Permanente should support their needs?; November 2019. https://sonnet.kaiserpermanente.org/survey.11.2019.html

Acknowledgments: We would like to thank the Kaiser Permanente Washington Health Research Institute Survey Research Program, project managers, and the SONNET Program Office for their support.

Supplemental materials

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Figure 1. Desire for assistance among respondents who endorsed 1 or more social risk.

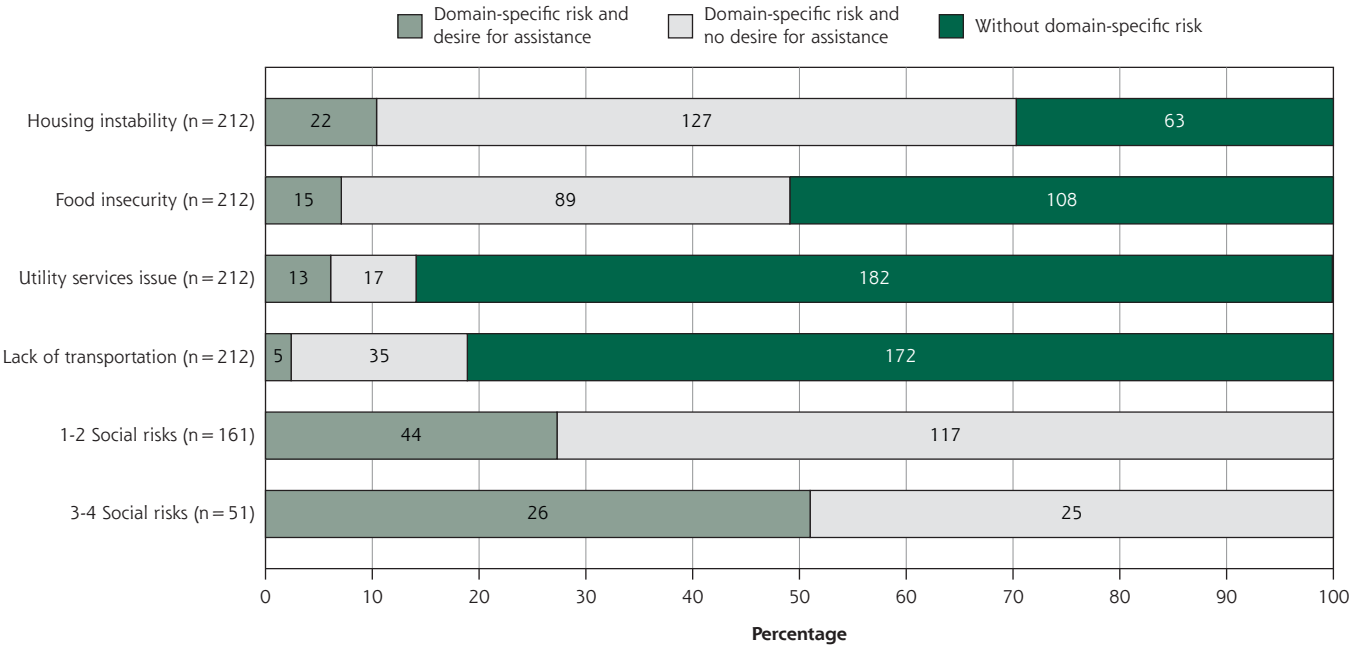

Table 3. Adjusted Associations Between Patient Factors and Having a Social Risk and a Desire for Assistance With the Social Risks

	Having a Social Risk Factor			Desire for Assistance Conditional on Social Risk Factor		
Patient Factors	**RR**	**95% CI**	***P* Value**	**RR**	**95% CI**	***P* Value**
Age Category, y						
18-26	Ref		.26	Ref		.61
27-44	0.86	0.64-1.15		1.22	0.67-2.22	
45-61	0.73	0.54-0.99		1.50	0.80-2.83	
≥62	0.86	0.66-1.13		1.05	0.58-1.90	
Sex						
Male	Ref		.12	Ref		.60
Female	1.17	0.96-1.43		0.90	0.60-1.34	
Race/Ethnicity						
White only	Ref		.49	Ref		.15
Black, African American only	1.59	1.07-2.38		2.23	1.29-3.84	
Hispanic, Latino[a]	0.95	0.71-1.28		1.44	0.76-2.75	
Other[b]	1.04	0.76-1.42		1.36	0.68-2.73	
Missing	0.99	0.72-1.35		0.91	0.45-1.83	
Percent with <12 years education						
<5%	Ref		.33	Ref		.71
5-9%	1.14	0.83-1.58		1.15	0.56-2.37	
10-14%	1.18	0.82-1.69		0.73	0.31-1.68	
15-19%	1.11	0.76-1.63		1.31	0.66-2.60	
20-24%	1.04	0.73-1.50		1.17	0.57-2.41	
25-29%	1.60	1.04-2.48		0.77	0.29-2.01	
30-34%	1.04	0.58-1.86		2.26	0.80-6.43	
≥35%	1.48	1.05-2.09		1.08	0.50-2.30	
Preferred spoken language						
English	Ref		.89	Ref		.72
Spanish	1.02	0.76-1.37		0.90	0.51-1.58	
Duration KP membership, y						
≥5	Ref		.09	Ref		.57
<1	1.44	1.07-1.94		1.34	0.74-2.44	
1-2	1.15	0.86-1.55		0.96	0.51-1.84	
3-4	1.08	0.78-1.50		1.18	0.59-2.38	
Self-reported health						
Excellent/Very good/Good	Ref		.001	Ref		.37
Fair/Poor	1.54	1.24-1.92		1.24	0.79-1.96	
Trust in clinician						
Complete (10)	Ref		.01	Ref		.13
High (8-9)	1.47	1.13-1.90		0.92	0.52-1.64	
Medium-Low (1-7)	1.29	0.98-1.70		1.47	0.83-2.61	
Health care–based social risk screening						
Very/Somewhat appropriate	Ref		.82	Ref		.05
Neither appropriate nor inappropriate	0.97	0.71-1.32		0.45	0.21-0.97	
Very/Somewhat inappropriate	1.07	0.84-1.35		0.68	0.40-1.16	
Uncomfortable with social risk screening						
No	Ref		.01	Ref		.48
Yes	1.57	1.20-2.04		1.23	0.71-2.10	

AIAN = American Indian, Alaskan Native; API = Asian Pacific Islander; KP = Kaiser Permanente; Ref = reference; RR = relative risk.

[a] Regardless of any other race/ethnic identity.
[b] AIAN, API, Multiple, non-Hispanic.

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