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Broadening the Lens: The Importance of Addressing Health-Related Social Needs in Clinical Settings

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Table of Contents

Acknowledgments.....	i
Executive Summary.....	ii
Introduction	1
<i>The Present Study</i>	2
Methods.....	2
<i>Dependent Variables: Health-Related Social Needs</i>	2
<i>Independent Variables</i>	3
<i>Analytic Strategy</i>	4
Findings	4
<i>Descriptive Analysis</i>	4
<i>Bivariate Analysis</i>	6
<i>Multivariable Analysis</i>	11
Discussion.....	22
<i>Conclusions</i>	23
References	24

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Executive Summary

Health care providers are conventionally trained to query their patients about biomedical risk factors for illness. However, there is increasing awareness of the role of social factors (such as health-related social needs or HRSNs) in producing poor health outcomes. Population-based data on the prevalence and correlates of health-related social needs is important for targeting resources to clinical practices for HRSN screening and social service referral support. Using data from a 2019 probability survey of 757 New Jersey adults, we describe patterns of six HRSNs in New Jersey and employ multivariate regression techniques to predict these HRSNs: 1) housing instability; 2) number of housing quality problems; 3) food insecurity; 4) transportation problems; 5) utilities problems; 6) interpersonal safety risk. These measures were adapted from The Accountable Health Communities Screening Tool, which is being used in a large scale, federally sponsored demonstration program.

Non-Hispanic Blacks and Hispanics/Latinos had higher odds of food insecurity than non-Hispanic Whites. For other HRSNs, the higher risk for Hispanics/Latinos was often eliminated after controlling for socioeconomic status while the higher risk for non-Hispanic Blacks often disappeared after controlling for residential setting and home ownership. Men had higher odds of housing instability and housing quality problems while divorced and separated respondents had higher odds of housing instability than married respondents. Practices serving populations most at risk for HRSN require resources for screening and referral to the social services their patients need. Our analysis of population-based data can help in directing resources to serving patients most in need.

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Introduction

A common misconception is that health care access and quality – in addition to health-related behaviors – are the driving factors that determine health disparities. However, recent estimates indicate that 40% of health outcomes are determined by social and economic factors (i.e., education, employment, income, family and social support, and community safety) and 10% are determined by the physical environment (i.e., air and water quality, housing, and transit) (McGinnis *et al.*, 2002; Robert Wood Johnson Foundation, n.d.). That means that more than half of health outcomes are due to factors largely outside of one’s individual control.

Often called social determinants of health, the World Health Organization defines these factors as “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life, including economic policies and systems, development agendas, social norms, social policies, and political systems” (World Health Organization, n.d.). There is a widespread concerted effort to address social determinants of health at the federal, state, and community levels, an imperative movement that targets underlying causes of inequity and the structural (i.e., institutional) level (Alley *et al.*, 2016; Artiga & Hinton, 2019; Brill, 2019). These “upstream” approaches targeting institutions are essential for ultimately achieving health equity at the population level.

As the macro-level push to address social and health inequity at the institutional level continues to unfold, a small yet burgeoning body of research and activism seeks to address a similar concept at the individual level. Health-related social needs refer to immediate social and economic needs of individual patients. Unmet health-related social needs such as housing instability and food insecurity are important to address during the clinical encounter because they “may increase the risk of developing chronic conditions, reduce an individual’s ability to manage these conditions, increase health care costs, and lead to avoidable health care utilization” (Alley *et al.*, 2016). The adoption of standardized screening for HRSNs in clinical settings potentially provides a useful tool to guide interventions addressing non-medical determinants of health among individual patients, especially those from marginalized populations. Furthermore, documenting the prevalence and correlates of health-related social

needs can help identify populations and communities most at need of social and economic interventions to address needs in their immediate social context, which will ultimately improve their chances of healthier outcomes. Research has emerged suggesting that initiatives to incorporate HRSN screenings in pediatric and adult care in safety net settings show promise for mitigating social drivers of health and improving health care utilization patterns (Gottlieb *et al.*, 2016; Sandberg *et al.*, 2014). Effective planning and deployment of HRSN screening intervention resources depends on an understanding of the prevalence of social needs and their distributions in at-risk populations.

The Present Study

The aims of this study are twofold. First, we use population-based data to identify the prevalence and correlates of six health-related social needs among adults living in New Jersey. These data can be used to inform health care providers about which patient groups may be at higher risk of experiencing immediate social needs and, by extension, at higher risk of being unable to follow prescribed treatment regimens that can improve health. Identifying these patients and channeling them to appropriate health and social services resources is imperative to ultimately achieving health equity. Second, we aim to inform the degree to which race/ethnicity and socioeconomic status contribute to health-related social needs. This line of inquiry is important because unlike race/ethnicity, socioeconomic factors are often modifiable and therefore amenable to policy intervention.

Methods

Data for this study were drawn from the 2019 New Jersey Health and Well-Being (NJHWB) Poll, which was funded by the Robert Wood Johnson Foundation. Landline and mobile phone random digit dial sampling frames were used to draw a sample (n=860) designed to represent all community-dwelling adults in New Jersey, who were interviewed in English and Spanish between January 16, 2019, and February 12, 2019. The data were weighted to match the demographic and telephone status parameters of the statewide population. Additional documentation regarding the methodology of the 2019 NJHWB Poll can be found elsewhere (Kolenikov *et al.*, 2019).

Dependent Variables: Health-Related Social Needs

The key dependent variables were adapted from the Accountable Health Community Screening Tool, a 10-item instrument adopted by the Centers for Medicare & Medicaid Services to identify patients at high levels of risk for poor social outcomes in clinical settings (Billieux *et al.*, 2017). This tool identified risk in six domains: housing instability, housing quality problems, food insecurity, transportation needs, utility needs, and interpersonal safety. We modified certain

items as necessary for administering the tool in a community (non-clinical) sample using telephone administration. Information on the original question wording is available from Billioux and colleagues (Billioux *et al.*, 2017).

Housing instability was measured by the survey question, “Which best describes your living situation?” and response categories included “I have a steady place to live”; “I have a place to live today but I am worried about losing it in the future”; and “I do not have a steady place to live.” Respondents who reported the latter two categories were deemed at risk and given a value of 1; those who reported having a steady place to live were coded as 0. A housing problems scale (range: 0-7) was based on a count of seven items, each of which asked respondents whether or not they have problems with: pests, such as bugs, ants, or mice; mold; lead paint or pipes; lack of heat; oven or stove not working; smoke detectors missing or not working; and water leaks.

Food insecurity was based on two questions (Hager *et al.*, 2010), each administered in a random half sample. Half of the sample was asked whether or not, in the past 12 months, “[you] were worried that food would run out before [you] got money to buy more” and the remaining half of the sample was asked whether or not, in the past 12 months, “...the food [you] bought didn’t last and [you] didn’t have money to get more.” Both questions included response categories for often true, sometimes true, and never true. Respondents who answered often true or sometimes true to either question were coded as 1 (at risk); those who reported either of these statements was never true were coded as 0.

Respondents were queried about *transportation needs* using the survey question, “In the past 12 months, has lack of reliable transportation kept you from medical appointments, meetings, work, or from getting to things needed for daily living?” Those who answered affirmatively were coded as 1 and those who did not experience transportation issues were coded as 0. The domain of *utility needs* (Cook *et al.*, 2008) was measured by the question, “In the past 12 months, has the electric, gas, oil, or water company threatened to shut off services in your home?” Finally, items for the *interpersonal safety* domain were adapted from the “Hurts, Insults, Threatens, and Screams” (HITS) instrument (Sherin *et al.*, 1998) and asked respondents how often anyone, including family, engaged in the following activities: insult or talk down to [you]; threaten [you] with harm; scream or curse at [you]. All items were coded using categories for never, rarely, sometimes, fairly often, or frequently. Items were rescaled and reverse-coded such that all higher values were associated with more frequent abuse and then summed into a scale ranging from 0/low-12/high. Respondents who scored in the 75th percentile or higher were coded as 1; the remaining respondents were coded as 0.

Independent Variables

Given our second aim, in which we investigate the relative roles of race/ethnicity versus socioeconomic status and other factors in predicting health-related social needs, race/ethnicity

is our key independent variable and was measured using categories for non-Hispanic White, non-Hispanic Black, Hispanic/Latino, Asian, and Other.

We controlled for a wide range of sociodemographic characteristics. *Sex* was measured using categories for male and female and *Age* was initially measured in years and then recoded into categories for 18-29, 30-49, 50-64, and 65 and older. *Marital status* was measured using categories for married; living with a partner; single and never married; widowed; divorced; or separated. Nativity (U.S. vs. foreign-born) and citizenship status (citizen, non-citizen) were combined into a measure of *nativity/citizenship status*, with categories for: U.S.-born citizen, foreign-born citizen, and foreign-born non-citizen. Socioeconomic status (SES) was measured using educational attainment (less than high school, high school graduate, some college, bachelor's degree, more than a bachelor's degree) and poverty status (0-138% of the federal poverty line, 139%-400% FPL, and greater than 400% FPL, and don't know/refused). Finally, residential setting was calculated based on separate measures for setting and neighborhood SES, resulting in categories for rural/low-high income; suburban/low income; suburban/high income; and urban/low-high income.

Analytic Strategy

First, we examine univariate distributions and bivariate associations of key sociodemographic characteristics with each of the six health-related social needs. We then conducted nested multivariable binary and ordinal logistic regression models to predict the six target HRSNs. Model 1 included race/ethnicity only and Model 2 added sociodemographic characteristics (age, gender, nativity/citizenship, marital status, household size, and presence of children in the household). In Model 3, we added SES measures (educational attainment, poverty status) to understand whether higher risk of immediate social needs among populations of color can be partially or fully accounted for by their lower socioeconomic standing, a central question in the study of health disparities. Model 4 added residential setting (urbanicity and community-level income) and home ownership. Data were collected on 860 respondents; the analytic sample was reduced to N=757 after excluding cases with missing values on any measure. All models were weighted to the population level.

Findings

Descriptive Analysis

A description of the study sample can be found in Table 1. Reflecting the population of adults in New Jersey, almost 6 in 10 (58.8%) of respondents were non-Hispanic White, 12.4% were non-Hispanic Black, and 17.1% were Hispanic/Latino. Roughly 5.8% of respondents were Asian and 5.9% reported another race. The mean age was 49.3 (SD=18.5, not shown); 17.3% of respondents

were aged 18-29 and almost one-quarter (23.9%) were aged 65 and older. Men comprised 47.5% of the analytic sample.

More than 8 in 10 respondents were U.S.-born citizens (80.9%). Approximately 11.6% were immigrants held U.S. citizenship and 7.5% were immigrants who had not received citizenship. More than half (53.6%) of the sample were married and another one-quarter (24.4%) were single and never married. The mean household size was 3.2 (SD=1.6) and 37.0% of respondents reported having minor children in the household. Roughly 36.4% of respondents earned at least a bachelor’s degree and more than 4 in 10 respondents (43.6%) lived above 400% of the federal poverty line (FPL). Another one-quarter lived between 139-400% of the federal poverty line and 16.1% lived at 0-138% FPL line. More than 38% of respondents lived in high-income suburban areas, 22.7% lived in rural areas, 21.3% lived in urban areas, and 17.9% lived in low-income suburban areas. More than two-thirds (67.6%) of respondents owned their homes.

Table 1: Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Respondents	
	N	%
Race/Hispanic origin		
Non-Hispanic White	482	58.8
Non-Hispanic Black	73	12.4
Hispanic/Latino	126	17.1
Asian	33	5.8
Other	43	5.9
Age		
18-29	100	17.3
30-49	194	35.1
50-64	218	23.7
65 and older	245	23.9
Men	375	47.5
Nativity/citizenship status		
U.S.-born citizen	625	80.9
Foreign-born non-citizen	45	7.5
Foreign-born citizen	87	11.6
Marital status		
Married	402	53.6
Cohabiting	41	6.8
Single and never married	164	24.4
Widowed	60	5.2
Divorced	75	7.2
Separated	15	2.8
Household size (mean, SD)	---	(3.2, 1.6)
Any children in household	221	37.0

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	Respondents	
	N	%
Educational attainment		
Less than high school	46	10.2
High school graduate	127	28.0
Some college	190	25.4
Bachelor's degree	205	18.5
More than bachelor's degree	189	17.9
Poverty status		
0-138% FPL	95	16.1
139-400% FPL	175	25.1
>400% FPL	374	43.6
Don't know/refused	113	15.3
Residential setting		
High/low income rural	185	22.7
Low-income suburban	124	17.9
High-income suburban	302	38.2
High/low income urban	146	21.3
Own home (vs. rent)	549	67.6

NOTE: Table displays unweighted Ns and weighted percentages.

Bivariate Analysis

Table 2 shows the weighted prevalence of each health-related social need, both overall and by key sociodemographic characteristics. Roughly 8.8% of the sample reported housing instability and almost 1/4 of the sample (24.8%) reported at least one housing quality problem. Food insecurity was an issue for 13.9% of the sample and approximately seven-in-ten respondents reported a problem with utilities (6.8%) or transportation (7.4%) in the past year. In terms of the interpersonal safety risk scale, 41.3% of respondents had a score of 0 (indicating highest safety), 34.7% scored between 1-2, 18.1% had scores between 3 and 5, and 6.0% scored between 4 and 12, indicating the highest risk of interpersonal safety issues.

Race/Hispanic origin was significantly associated with each of the six HRSNs under investigation. Non-Hispanic White adults had the lowest prevalence of four HRSNs (housing quality problems, utility problems, food insecurity, and interpersonal safety problems) while Asians had the lowest prevalence of housing instability and those of Other race had the lowest prevalence of transportation problems. Hispanics/Latinos had the highest prevalence of housing instability (23.8%) and non-Hispanic Blacks and Hispanics/Latinos had the highest prevalence of any housing quality problem (40.8% and 38.2%, respectively). Utility problems were most prevalent among those of Other race (18.3%) and non-Hispanic Blacks (16.0%) while food insecurity was highest among Hispanics/Latinos (33%) and non-Hispanic Blacks (27.8%). Hispanics/Latinos had the highest prevalence of transportation problems (21.2%) while Asians had the highest prevalence of any interpersonal safety problem (66.7%).

Table 2: Percentage with Health-Related Social Needs by Sociodemographic Characteristics

	Housing Instability	# Housing Quality Problems			Utility Problems	Food Insecurity	Transportation Problems	Interpersonal Safety Problems			
		None	1-2	3+				None	1-2	3-5	6+
All	8.8	75.3	22.5	2.3	6.8	13.9	7.4	41.3	34.7	18.1	6.0
Race/Hispanic origin	***		***		***	***	***		*		
Non-Hispanic White	4.7	82.5	16.8	0.6	3.8	6.1	4.3	44.5	36.5	15.5	3.4
Non-Hispanic Black	11.7	59.2	38.0	2.8	16.0	27.8	6.3	25.9	35.5	26.7	12.0
Hispanic/Latino	23.8	61.1	31.7	7.2	4.6	33.0	21.2	44.0	24.1	22.3	9.7
Asian	0.0	71.8	27.5	0.7	12.0	9.9	7.0	33.3	40.2	19.7	6.8
Other	8.5	80.8	14.6	4.6	18.3	10.7	1.4	42.0	39.7	11.5	6.9
Age	-		**		-	***	-		***		
18-29	8.7	65.9	32.2	2.0	9.0	19.1	8.5	21.1	34.8	33.6	10.5
30-49	10.4	70.7	25.3	4.1	9.4	20.8	9.8	40.5	36.4	18.6	4.5
50-64	10.4	81.8	16.4	1.8	5.3	7.9	5.1	47.2	34.0	12.7	6.1
65 and older	4.9	82.2	17.4	0.3	2.8	6.1	5.4	51.3	32.7	11.5	4.6
Sex	-		-		-	-	-		-		
Men	9.7	72.4	25.0	2.7	7.9	14.1	6.9	41.7	34.1	18.0	6.2
Women	8.0	77.9	20.2	1.9	5.7	13.7	8.0	41.0	35.2	18.2	5.7
Nativity/citizenship status	***		-		-	-	***		-		
U.S.-born citizen	7.0	76.0	22.2	1.8	6.5	12.5	5.2	42.1	35.2	17.4	5.3
Foreign-born citizen	9.9	70.2	26.1	3.7	7.3	16.3	12.4	31.9	35.7	25.5	6.9
Foreign-born non-citizen	26.1	75.0	19.9	5.1	8.9	25.7	24.2	47.9	27.5	13.6	11.0
Marital status	***		***		-	***	*		-		
Married	3.6	82.0	15.6	2.4	4.5	8.1	5.6	45.0	33.1	16.3	5.6
Cohabiting	21.0	69.9	26.0	4.1	8.3	17.2	6.4	29.3	40.1	21.6	9.0
Single and never married	9.2	61.7	36.1	2.2	11.0	20.6	9.2	32.7	36.2	22.9	8.2
Widowed	11.7	82.2	17.8	0.0	4.0	7.1	1.7	58.3	33.7	8.0	0.0
Divorced	22.9	81.7	16.0	2.3	6.1	29.1	13.4	39.0	41.6	17.5	1.8
Separated	33.0	47.7	52.3	0.0	16.2	33.6	25.9	49.5	20.5	22.6	7.4

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	Housing Instability	# Housing Quality Problems			Utility Problems	Food Insecurity	Transportation Problems	Interpersonal Safety Problems			
		None	1-2	3+				None	1-2	3-5	6+
		-	-	-				-	-	-	-
Children in household											
Yes	10.1	71.4	25.6	3.0	9.3	17.6	8.9	38.4	37.4	18.7	5.5
No	8.0	77.5	20.7	1.8	5.3	11.7	6.6	43.0	33.0	17.7	6.2
Educational attainment	***		***		*	***	***				
Less than high school	32.3	44.7	45.6	9.7	1.2	27.1	18.3	42.8	27.2	20.1	9.9
High school graduate	12.0	77.3	20.9	1.8	11.0	17.2	11.9	39.9	35.5	17.3	7.3
Some college	5.4	79.4	19.9	0.8	7.9	16.0	4.9	35.8	38.9	20.6	4.7
Bachelor's degree	3.1	77.7	20.0	2.3	3.0	7.1	3.0	43.6	36.6	13.1	6.7
More than bachelor's	1.1	81.1	18.0	0.9	5.7	5.3	2.4	48.2	29.6	19.7	2.6
Poverty status	***		***		-	***	***				
0-138% FPL	20.1	59.1	34.3	6.6	10.8	30.4	23.9	37.4	29.3	25.1	8.3
139-400% FPL	15.4	69.2	26.8	4.0	9.5	20.3	8.3	32.7	40.1	19.2	8.0
>400% FPL	1.7	83.8	16.0	0.2	4.4	4.3	2.4	44.3	36.1	15.7	4.0
Don't know/refused	6.3	77.8	21.7	0.5	4.8	13.5	2.9	51.3	27.3	15.7	5.7
Residential setting	***		***		*	***	**			***	
High/low income rural	4.1	79.1	19.8	1.1	2.5	6.8	4.1	47.9	34.6	10.1	7.4
Low-income suburban	9.2	87.0	12.5	0.5	4.3	17.8	10.5	34.9	37.0	23.2	4.9
High-income suburban	4.5	81.1	17.7	1.3	7.5	8.5	4.1	47.4	35.2	14.1	3.2
High/low income urban	21.1	50.9	42.4	6.8	12.0	28.0	14.5	28.8	31.6	29.3	10.2
Own home (vs. rent)	***		***		**	***	***			*	
Own	3.4	82.7	16.7	0.6	4.4	7.5	4.0	44.4	35.4	15.6	4.7
Rent	20.1	59.8	34.6	5.7	11.7	27.2	14.6	35.0	33.2	23.2	8.7

NOTE: *** P<0.001, ** P<0.01, * P<0.05.

Age was significantly associated with three of the six HRSNs. In general, older age was associated with lower prevalence of housing problems, food insecurity, and interpersonal safety problems. Sex was not significantly associated with any of the health-related social needs although nativity/citizenship status was associated with two HRSNs. Foreign-born non-citizens (26.1%) had more than double the prevalence of housing instability compared to foreign born citizens (9.9%) and more than three times the prevalence of housing instability compared to U.S.-born citizens (7%). Foreign-born non-citizens also had significantly greater prevalence of transportation problems compared to foreign-born citizens and U.S.-born citizens (24.2% vs. 12.4% and 5.2%, respectively).

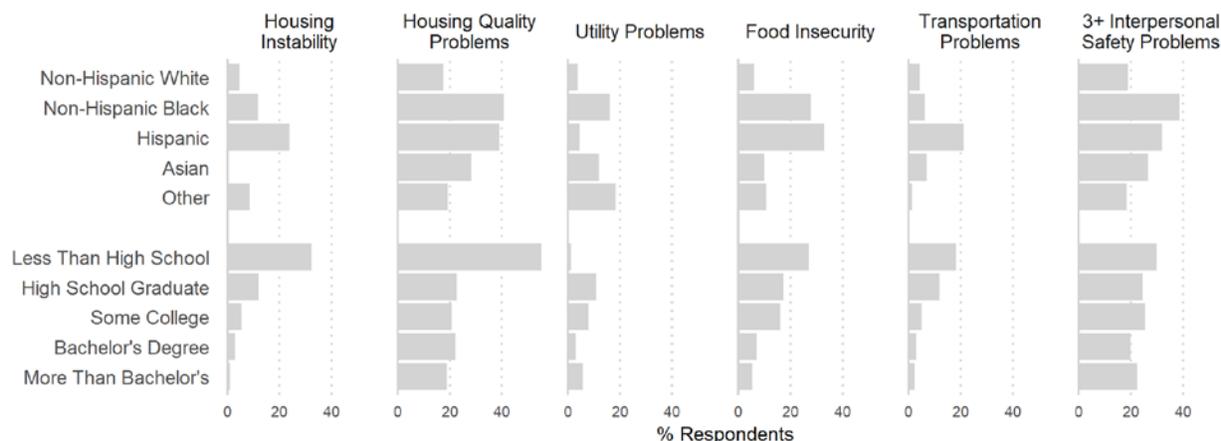
Marital status was significantly associated with four of the six HRSNs. Separated respondents had the highest prevalence of housing instability (33%) and any housing quality problems (52.3%), food insecurity (33.6%), and transportation problems (25.9%). Housing instability was also relatively prevalent among divorced (22.9%) and cohabiting adults (21%) while single/never married adults (38.3%) and those who were cohabiting (30.1%) also had relatively high prevalence of any housing quality problems. Food insecurity was lowest among widowed and married adults (7.1% and 8.1%, respectively) and widowed adults had extremely low prevalence of transportation problems (1.7%). Marital status was not significantly associated with utility problems or interpersonal safety problems and the presence of children in the household was not significantly associated with any of the six HRSNs.

Socioeconomic status was consistently associated with health-related social needs. Educational attainment was predictive of all HRSNs with the exception of interpersonal safety. For three HRSNs, there was a consistent gradient in risk such that as educational attainment increased, the prevalence of housing instability, food insecurity, and transportation problems decreased. Despite slight variation in the moderately educated groups, the same general trend was found for number of housing problems; more than half (55.3%) of those with less than a high school education had at least one housing quality problem, compared to only 18.9% of those with more than a bachelor's degree. Trends for utility problems were more varied, however. High school graduates displayed the highest prevalence of utility problems (11%), followed by those with some college education (7.9%), those with more than a bachelor's degree (5.7%), bachelor's degree holders (3.0%). Unlike other HRSNs, those with less than high school education were least likely to report utility problems (1.2%).

To further explore the complex inter-relationships between race/ethnicity and socioeconomic status, Figure 1 displays the associations between each HRSN and both race/Hispanic origin and educational attainment. Poverty status was significantly associated with all HRSNs except utility problems and interpersonal safety problems. There was a steep gradient for the four remaining HRSNs such that those at the highest level of poverty (0-138% FPL) had the highest prevalence of housing stability (20.1%), any housing quality problem (30.8%), food insecurity (30.4%), and transportation problems (23.9%) while those at the lowest

level of poverty (400% FPL or greater) had the lowest prevalence of these measures (1.7% for housing instability, 16.2% for any housing quality problem, 4.3% for food insecurity, and 2.4% for transportation problems).

Figure 1: Health-Related Social Needs by Race/Ethnicity and Educational Attainment



To further explore the complex inter-relationships between race/ethnicity and socioeconomic status, Figure 1 displays the associations between each HRSN and both race/Hispanic origin and educational attainment. Poverty status was significantly associated with all HRSNs except utility problems and interpersonal safety problems. There was a steep gradient for the four remaining HRSNs such that those at the highest level of poverty (0-138% FPL) had the highest prevalence of housing stability (20.1%), any housing quality problem (30.8%), food insecurity (30.4%), and transportation problems (23.9%) while those at the lowest level of poverty (400% FPL or greater) had the lowest prevalence of these measures (1.7% for housing instability, 16.2% for any housing quality problem, 4.3% for food insecurity, and 2.4% for transportation problems).

Both residential setting and home ownership were significantly associated with each of the six HRSNs. Residents of urban areas (high or low income) had the highest prevalence of housing instability (21.1%), any housing quality problem (49.1%), utility problems (12%), food insecurity (28%), transportation problems (14.5%), and any interpersonal safety problem (71.2%). Conversely, rural residents had the lowest prevalence of housing instability (4.1%), utility problems (2.5%), food insecurity (6.8%), and transportation problems (4.1%, tied with high-income suburban residents). Low-income suburban residents had the lowest prevalence of any housing problems (13%). Relative to homeowners, renters had higher prevalence of all six HRSNs (20.1% vs. 3.4% for housing instability; 40.2% vs. 17.3% for housing quality problems; 11.7% vs. 4.4% for utility problems; 27.2% vs. 7.5% for food insecurity, 14.6% vs. 4% for transportation problems; and 65% vs. 55.6% for any interpersonal safety problems).

Multivariable Analysis

The multivariable analyses that follow describe the inter-relationships among demographic and SES measures and each HRSN. The first column, labeled Model 1, of each table shows simple odds ratios measuring the association of race/ethnicity with the respective HRSN. Model 1 results provide same information about race/ethnicity and HRSNs as Table 2 and Figure 1, but in the form of relative odds. Model 2 in each table adds key demographic characteristics, to illustrate how these factors may affect the association of race/ethnicity with each HRSN. Model 3 in each table adds control variables for SES factors and Model 5 adds residential setting. These models can shed light on the complex relationships of race/ethnicity with other sociodemographic factors.

Table 3 displays the results from a multivariate binary logistic regression series predicting housing instability. In the baseline model, which only included race/ethnicity, non-Hispanic Blacks had 2.69 marginally higher odds of reporting housing instability than non-Hispanic Whites ($p=0.061$). Hispanics/Latinos had more than six times the odds of reporting housing instability, relative to non-Hispanics Whites ($OR=6.33$; $p<0.001$).¹ After controlling for sociodemographic characteristics in Model 2, there was no longer a significant difference in housing instability between non-Hispanic Whites and non-Hispanic Blacks. However, Hispanics/Latinos still had more than five times higher odds of reporting housing instability than non-Hispanic Whites ($OR=5.65$; $p<0.001$). Relative to married respondents, those who were cohabiting, widowed, divorced, or separated had between five and 10 times higher odds of housing instability, with the highest risk for those who were divorced ($OR=9.85$; $p<0.001$) or separated ($OR=10.21$; $p<0.001$). Those who were single and never married had three times marginally higher odds of housing instability than married individuals ($p=0.014$). Age, gender, nativity/citizenship, household size, and the presence of children in the household were not significant predictors of housing instability in Model 2.

After controlling for SES in Model 3, Hispanics/Latinos no longer had higher odds of housing instability than Whites. Gender became significant in Model 3, whereby men had more than twice the odds of housing instability relative to women ($OR=2.33$; $p=0.039$). The results for marital status largely remained the same in Model 3; those who were cohabiting, divorced, or separated had higher/marginally higher odds of housing instability than married respondents. However, those who were single and never married no longer had higher odds of housing instability after accounting for SES in Model 3. Those with less than a high school diploma ($OR=8.54$; $p=0.001$) and high school graduates ($OR=3.45$; $p=0.018$) had higher odds of housing instability than those with a bachelor's degree. Relative to those living above 400% of the federal

¹ Asian respondents were not included in this model series because none reported housing instability.

Table 3. Multivariate Binary Logistic Regression Models Predicting Housing Instability Based on Race/Ethnicity and Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Race/Ethnicity (ref=NH White) ¹				
Non-Hispanic Black	2.69+	2.28	1.69	0.90
Hispanic/Latino	6.33***	5.65***	1.78	1.12
Other	1.89	1.39	1.24	1.05
Age (ref=18-29 years)				
30-49	---	1.24	0.85	0.77
50-64	---	2.35	1.44	1.44
65+	---	0.86	0.39	0.40
Men (ref=women)				
	---	1.77	2.33*	2.32*
Nativity/Citizenship (ref=U.S.-born citizen)				
Foreign-born non-citizen	---	1.65	1.56	1.26
Foreign-born citizen	---	0.73	0.68	0.72
Marital status (ref=married)				
Cohabiting	---	5.96*	4.03*	3.04
Single and never married	---	3.02+	2.33	1.99
Widowed	---	7.25**	5.58+	7.50*
Divorced	---	9.85***	9.92***	8.91***
Separated	---	10.21**	9.08**	8.95*
Household size				
Any children in the HH (ref=no)	---	1.06	0.68	0.69
Educational attainment (ref=at least a bachelor's degree)				
Less than high school	---	---	8.54**	6.45**
High school diploma	---	---	3.45*	3.03*
Some college	---	---	1.69	1.38
> Bachelor's degree	---	---	0.41	0.37
Poverty status (ref= > 400% FPL)				
0-138% FPL	---	---	3.92*	2.73
>139-400% FPL	---	---	8.36***	6.55**
Don't know/refused	---	---	1.96	2.03*
Residential setting (ref=high-income suburban)				
Rural	---	---	---	0.70
Low-income suburban	---	---	---	1.06
Urban	---	---	---	2.10
Rent home (vs. own)				
	---	---	---	2.11

NOTE: ***p<0.001; ** p<0.01; * p<0.05; + p<0.10. Data are weighted.

¹ Asian respondents (n=33) were not included in this model series because none reported housing instability.

poverty line, those living at 0-138% FPL (OR=3.92; $p=0.046$) and 139-400% FPL (OR=8.36; $p<0.001$) had higher odds of housing instability. Age, nativity/citizenship, household size, and the presence of children in the household remained not significant predictors of housing instability in Model 3.

The same patterns largely persisted after adding residential setting and home ownership in Model 4, with two exceptions. Cohabiting individuals were no longer at higher risk of housing instability than married individuals and respondents who said that they did not know their income or refused to give their income had twice the odds of housing instability than those who were at 400% FPL or higher. Neither residential setting nor home ownership were significant predictors of housing instability in Model 4.

Table 4 displays results from an ordinal logistic regression model series predicting the number of housing quality problems (0, 1-2, 3 or more). In Model 2, both non-Hispanic Black (OR=3.21; $p<0.001$) and Hispanic/Latino respondents (OR=3.19; $p<0.001$) had three times higher odds of being in a higher category of housing quality problems than non-Hispanic Whites. These two groups remained at higher risk after accounting for sociodemographic characteristics in Model 2. Model 2 also found that, relative to married respondents, those who were single and never married had more than two times higher odds and those who were separated had more than three times higher odds of being in a higher category of housing problems. Age, gender, nativity/citizenship, household size, and presence of children in the household were not significant predictors of number of housing problems in Model 2.

After adding sociodemographic characteristics in Model 3, Hispanics/Latinos were no longer at higher risk of more housing problems and the higher odds of more housing problems for non-Hispanic Blacks (relative to non-Hispanic Whites) dropped to marginal significance. Relative to those who were married, those who were single/never married continued to have higher odds of being in a higher category of housing problems and there was no longer a significant difference between separated and married individuals. Two marginally significant difference emerged in this model. Men had 56% marginally higher odds of being in a higher category of housing problems and non-citizen immigrants had 65% marginally lower odds of being in a higher category of housing problems than U.S. citizens. Age, household size, and presence of children in the household were not significant predictors of number of housing problems in Model 2.

After accounting for residential setting and home ownership in Model 3, non-Hispanic Blacks no longer had higher odds of being in a higher category of household problems than non-Hispanic Whites while all other relationships remained the same. Relative to those living in high-income suburban areas, those living in low-income suburban areas had 60% lower odds of being in a higher category of number of household problems ($p=0.028$) and those living in urban areas had 2.52 times greater odds of having more household problems ($p=0.003$). Renters had 79%

Table 4. Multivariate Ordinal Logistic Regression Models Predicting Number of Housing Quality Problems (0, 1-2, 3 or More) Based on Race/Ethnicity and Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Race/Ethnicity (ref=NH White)				
Non-Hispanic Black	3.21***	2.20*	1.74+	1.09
Hispanic/Latino	3.19***	3.15***	1.47	0.95
Asian	1.82	1.39	1.24	1.00
Other	1.17	0.94	0.92	0.82
Age (ref=18-29 years)				
30-49	---	1.27	1.17	1.02
50-64	---	0.92	0.73	0.69
65+	---	0.88	0.65	0.60
Men (ref=women)	---	1.43	1.56+	1.53+
Nativity/Citizenship (ref=U.S.-born citizen)				
Foreign-born non-citizen	---	0.48	0.35+	0.29+
Foreign-born citizen	---	0.99	0.83	0.82
Marital status (ref=married)				
Cohabiting	---	1.71	1.68	1.11
Single and never married	---	2.43**	2.16*	2.03*
Widowed	---	1.25	1.00	1.21
Divorced	---	0.92	0.82	0.74
Separated	---	3.32*	2.68	3.42
Household size	---	0.87	0.88	0.90
Any children in the HH (ref=no)	---	1.61	1.33	1.49
Educational attainment (ref=bachelor's degree)				
Less than high school	---	---	2.80*	3.18*
High school diploma	---	---	0.71	0.75
Some college	---	---	0.77	0.77
> Bachelor's degree	---	---	0.86	0.96
Poverty status (ref= > 400% FPL)				
0-138% FPL	---	---	2.77**	2.19*
>139-400% FPL	---	---	2.29**	1.93*
Don't know/refused	---	---	1.34	1.30
Residential setting (ref=high-income suburban)				
Rural	---	---	---	1.46
Low-income suburban	---	---	---	0.40*
Urban	---	---	---	2.52**
Rent home (vs. own)	---	---	---	1.79*

NOTE: *** p<0.001; ** p<0.01; * p<0.05; + p<0.10. Data are weighted.

higher odds of being in a higher category of number of household problems than homeowners ($p=0.037$) in Model 4.

The results from a multivariate binary logistic regression model series predicting any food insecurity problem can be found in Table 5. In Model 1, relative to non-Hispanic Whites, non-Hispanic Blacks had almost six times greater odds of a food insecurity problem ($OR=5.92$; $p<0.001$) and Hispanics/Latinos had more than seven times greater of a food insecurity problem ($OR=7.57$; $p<0.001$). The elevated risk for non-Hispanic Blacks and Hispanics/Latinos persisted after controlling for sociodemographic characteristics in Model 2. Compared to married individuals, those who were divorced had more than six times higher odds of a food insecurity problem ($OR=6.20$; $p<0.001$) and those who were separated had more than three times higher odds of a food insecurity problem ($OR=3.46$; $p=0.073$). Age, gender, nativity/citizenship, household size, and presence of children in the household were not significant predictors of food insecurity in Model 2.

Non-Hispanic Blacks and Hispanics/Latinos continued to have increased odds of food insecurity (relative to Whites) after adding sociodemographic characteristics in Model 3. Divorced individuals also continued to be at higher risk though there was no longer any difference in the odds of food insecurity between separated and married respondents in Model 2. Age differences emerged in this model, whereby adults 50-64 had 66% lower odds and adults 65 and older had 79% lower odds of food insecurity than adults 18-29 years old ($p=0.038$ and $p=0.025$, respectively). In terms of educational attainment, those with some college education had 2.61 times greater odds of food insecurity than those with a bachelor's degree ($p=0.019$). Poverty status was a stronger predictor of food insecurity; compared to those living at 400% FPL or higher, those living at 0-138% FPL had six times greater odds of food insecurity ($OR=6.10$; $p<0.001$), those at 138-400% FPL had more than four times greater odds of food insecurity ($OR=4.45$; $p=0.001$), and those who didn't know or refused to answer this question had 2.8 times greater odds of food insecurity ($p=0.036$). Gender, nativity status, household size, and presence of children were not significant predictors of food insecurity in Model 3.

All of these patterns persisted after controlling for residential setting and home ownership in Model 4. In terms of race/ethnicity, Non-Hispanic Blacks and Latinos had three times greater odds of food insecurity than non-Whites. Divorced respondents, those with some college education, and those at the lowest levels of poverty had higher odds of food insecurity (than married respondents, those with a bachelor's degree, and those at the highest poverty level) while adults 50 and older had lower odds of food insecurity than adults 18-20. Residential setting and home ownership did not significantly predict food insecurity in Model 4.

The results from multivariate binary logistic regression models predicting any transportation problem can be found in Table 6. In Model 1, Hispanics/Latinos had almost six times greater odds of a transportation problem than non-Hispanic Whites ($OR=5.96$; $p<0.001$), a difference that remained strong although weakened somewhat after controlling for

Table 5. Multivariate Binary Logistic Regression Models Predicting Any Food Insecurity Problem Based on Race/Ethnicity and Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Race/Ethnicity (ref=NH White)				
Non-Hispanic Black	5.92***	4.65***	3.91**	3.02*
Hispanic/Latino	7.57***	6.69***	3.74***	3.10**
Asian	1.69	1.24	0.92	0.93
Other	1.84	1.53	1.26	1.24
Age (ref=18-29 years)				
30-49	---	1.32	1.01	1.02
50-64	---	0.54	0.34*	0.34*
65+	---	0.45	0.21*	0.22*
Men (ref=women)				
	---	1.23	1.43	1.42
Nativity/Citizenship (ref=U.S.-born citizen)				
Foreign-born non-citizen	---	0.72	0.63	0.55
Foreign-born citizen	---	0.71	0.67	0.68
Marital status (ref=married)				
Cohabiting	---	1.47	1.14	1.04
Single and never married	---	1.99	1.33	1.28
Widowed	---	2.07	2.22	2.44
Divorced	---	6.20***	5.32***	4.98***
Separated	---	3.46+	3.51	3.15
Household size				
	---	1.02	0.99	1.02
Any children in the HH (ref=no)				
	---	1.00	0.77	0.73
Educational attainment (ref=bachelor's degree)				
Less than high school	---	---	1.35	1.22
High school diploma	---	---	1.76	1.69
Some college	---	---	2.61*	2.49*
> Bachelor's degree	---	---	0.96	1.01
Poverty status (ref= > 400% FPL)				
0-138% FPL	---	---	6.10***	4.94**
>139-400% FPL	---	---	4.45**	4.18**
Don't know/refused	---	---	2.80*	2.90*
Residential setting (ref=high-income suburban)				
Rural	---	---	---	0.83
Low-income suburban	---	---	---	1.55
Urban	---	---	---	1.38
Rent home (vs. own)				
	---	---	---	1.49

NOTE: *** p<0.001; ** p<0.01; * p<0.05; + p<0.10. Data are weighted.

Table 6. Multivariate Binary Logistic Regression Models Predicting Any Transportation Problem Based on Race/Ethnicity and Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Race/Ethnicity (ref=NH White)				
Non-Hispanic Black	1.50	0.84	0.56	0.41
Hispanic/Latino	5.96***	3.52**	1.30	1.05
Asian	1.66	1.15	0.86	0.81
Other	0.30	0.19	0.15+	0.14+
Age (ref=18-29 years)				
30-49	---	1.26	1.07	1.10
50-64	---	0.99	0.76	0.79
65+	---	1.25	0.73	0.76
Men (ref=women)				
	---	0.96	1.29	1.25
Nativity/Citizenship (ref=U.S.-born citizen)				
Foreign-born non-citizen	---	3.10*	2.88+	2.71+
Foreign-born citizen	---	1.84	2.08	2.09
Marital status (ref=married)				
Cohabiting	---	0.67	0.42	0.38
Single and never married	---	1.87	1.34	1.31
Widowed	---	0.30	0.28	0.30
Divorced	---	2.27	1.61	1.51
Separated	---	4.58+	3.42	3.36
Household size				
	---	0.85	0.88	0.89
Any children in the HH (ref=no)				
	---	1.32	0.99	1.00
Educational attainment (ref=bachelor's degree)				
Less than high school	---	---	1.51	1.42
High school diploma	---	---	2.70+	2.69+
Some college	---	---	1.36	1.33
> Bachelor's degree	---	---	0.63	0.64
Poverty status (ref= > 400% FPL)				
0-138% FPL	---	---	6.65**	5.79***
>139-400% FPL	---	---	2.99*	2.77+
Don't know/refused	---	---	0.84	0.84
Residential setting (ref=high-income suburban)				
Rural	---	---	---	0.89
Low-income suburban	---	---	---	1.17
Urban	---	---	---	1.44
Rent home (vs. own)				
	---	---	---	1.28

NOTE: *** p<0.001; ** p<0.01; * p<0.05; + p<0.10. Data are weighted.

sociodemographic characteristics in Model 2 (OR=3.52; $p=0.001$). Non-citizen immigrants had more than three times greater odds of food insecurity than U.S.-born citizens (OR=3.10; $p=0.028$) and respondents who were separated had 4.58 times marginally greater odds of food insecurity than those who were married ($p=0.068$). Age, gender, household size, and presence of children in the household were not significant predictors of food insecurity in Model 2.

After adding SES measures in Model 3, Hispanics/Latinos were no longer at higher risk of transportation problems relative to non-Hispanic Whites but those of Other race showed 85% marginally lower odds of transportation problems than non-Hispanic Whites. The effect for non-citizen immigrants weakened somewhat after adding SES measures, although they still had almost three times marginally higher odds of food insecurity than U.S. citizens ($p=0.054$). Those with a high school diploma had marginally higher odds of reporting a transportation problem than those with a bachelor's degree (OR=2.70; $p=0.079$). Those living at 0-138% FPL and 139-400% FPL had more than six (OR=6.10; $p=0.001$) and four times (OR=4.45; $p=0.045$) greater odds of reporting a transportation problem than those living at 400% FPL or higher. Age, gender, marital status, household size, and presence of children were not significant predictors of transportation problems in Model 3. The same relationships persisted in Model 4, with those of other race having marginally lower odds of reporting a transportation problem than Whites, while non-citizens, those with a high school diploma, and those at high levels of poverty generally exhibiting higher odds of a transportation problem.

Table 7 presents the results from multivariate binary logistic regression models predicting any utilities problem. In Model 1, relative to non-Hispanic Whites, non-Hispanic Blacks (OR=4.81; $p<0.001$) and those of Other race (OR=5.67) had considerably higher odds of a utilities problem; Asians had 3.47 times marginally greater odds of a utilities problem than non-Hispanic Whites ($p=0.068$). The marginally significant effect for Asians disappeared after accounting for SES in Model 2, although non-Hispanic Blacks and those of Other race remained at greater than three and four times higher odds of any utilities problem than non-Hispanic Whites, respectively. Respondents who reported having children in the household had more than two times greater odds of a utilities problem than those without children in the household, a marginally significant effect (OR=2.10; $p=0.097$). Age, gender, nativity/citizenship, marital status, and household size were not significant predictors of any utilities problem in Model 2.

After accounting for SES in Model 3, non-Hispanic Blacks and those of Other race remained at greater than three times higher odds of a utilities problem than non-Hispanic Whites. The presence of children in the household was no longer a significant predictor of a utilities problem. Those with a high school diploma or some college education had 3.28 and 2.61 times marginally greater odds of a utilities problem than those with a bachelor's degree and those at 0-138% FPL had almost four times greater odds of a utilities problem than those at 400% FPL or more ($p=0.022$). Age, gender, nativity/citizenship, marital status, household size, or presence of children were not significant predictors of a utilities problem in Model 3.

Table 7. Multivariate Binary Logistic Regression Models Predicting Any Utilities Problem Based on Race/Ethnicity and Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Race/Ethnicity (ref=NH White)				
Non-Hispanic Black	4.81***	3.28*	3.38*	2.06
Hispanic/Latino	1.23	0.78	0.69	0.52
Asian	3.47+	2.80	2.61	2.37
Other	5.67**	4.34*	3.69*	3.17+
Age (ref=18-29 years)				
30-49	---	1.43	1.15	1.18
50-64	---	1.08	0.92	1.04
65+	---	0.54	0.32	0.33
Men (ref=women)	---	1.30	1.47	1.41
Nativity/Citizenship (ref=U.S.-born citizen)				
Foreign-born non-citizen	---	1.17	1.19	0.90
Foreign-born citizen	---	1.00	0.99	1.03
Marital status (ref=married)				
Cohabiting	---	2.06	1.46	1.08
Single and never married	---	2.06	1.31	1.13
Widowed	---	2.42	2.92	3.12
Divorced	---	1.40	1.12	0.88
Separated	---	3.49	4.30	3.86
Household size	---	0.91	0.88	0.88
Any children in the HH (ref=no)	---	2.10+	1.79	1.99
Educational attainment (ref=bachelor's degree)				
Less than high school	---	---	0.20	0.19
High school diploma	---	---	3.28+	3.22+
Some college	---	---	2.61+	2.44
> Bachelor's degree	---	---	2.01	1.76
Poverty status (ref= > 400% FPL)				
0-138% FPL	---	---	3.92*	3.10+
>139-400% FPL	---	---	2.08	1.93
Don't know/refused	---	---	0.98	1.01
Residential setting (ref=high-income suburban)				
Rural	---	---	---	0.36
Low-income suburban	---	---	---	0.49
Urban	---	---	---	0.95
Rent home (vs. own)	---	---	---	2.14

NOTE: *** p<0.001; ** p<0.01; * p<0.05; + p<0.10. Data are weighted.

Non-Hispanic Blacks were no longer at higher risk of a utilities problem than non-Hispanic Whites after adding residential setting and homeownership in Model 4 (Table 6), although those of Other race continued to have more than three times marginally higher odds of any utilities problem. Relative to those with a bachelor's degree, those with a high school diploma continued to have marginally higher odds of a utilities problem, although there was no longer a marginally significant difference between those with some college and those with a bachelor's degree in this model. Those at the lowest poverty level (0-138% FPL) had more than three times marginally higher odds of reporting a utilities problem than those at 400% FPL or more. Age, gender, nativity/citizenship, household size, any children in the household, residential setting, and home ownership were not significant predictors of a utilities problem in Model 4.

Table 8 presents results from multivariate ordinal logistic regression models predicting interpersonal safety risk (none, low, medium, high). In Model 1, non-Hispanic Blacks had more than twice the odds of being in a higher category of interpersonal safety risk than non-Hispanic Whites (OR=2.48; $p=0.001$), an effect that persisted after controlling for sociodemographic characteristics in Model 2 (OR=2.28; $p=0.006$). Increasing age was associated with lower odds of being in a higher category of interpersonal safety risk; compared to those aged 18-29, those aged 30-49 had 68% lower odds, those aged 50-64 had 76% lower odds, and those aged 65 and older had 79% lower odds of being in a higher category of interpersonal safety risk ($p<0.001$ for all). Gender, nativity/citizenship, marital status, household size, and presence of children in the household were not significant predictors of interpersonal safety risk in Model 2.

These patterns persisted in Model 3, after accounting for SES. Model 3 also found that compared to those at 400% FPL or more, those at 0-138% FPL and 139-440% FPL had 91% higher odds (OR=1.91; $p=0.040$) and 60% higher odds ($p=0.027$) of being in a higher category of interpersonal safety risk than those at 400% FPL or higher. Gender, nativity/citizenship, marital status, household size, and presence of children in the household were still no longer significant predictors of interpersonal safety risk in Model 3; educational attainment was also not a significant predictor of interpersonal safety risk in this model.

After accounting for residential setting and home ownership in Model 4, non-Hispanic Blacks were no longer at increased risk (relative to non-Hispanic Whites) of being in a higher category of interpersonal safety risk. Older people had lower odds of greater interpersonal risk and although those at 0-138% FPL no longer had higher odds of greater interpersonal risk, those at 139-400% FPL had 44% marginally higher odds of being in a higher category of interpersonal risk than those at 400% FPL or more. Compared to respondents who lived in high-income suburban neighborhoods, those lived in low-income suburban neighborhoods had 83% higher odds of being in a higher category of interpersonal risk ($p=0.010$) and those residing in urban areas had more than twice the odds of being in a higher category of interpersonal risk (OR=2.26; $p=0.002$).

Table 8. Multivariate Ordinal Logistic Regression Models Predicting Interpersonal Safety Risk (None, Low, Medium, High) Based on Race/Ethnicity and Sociodemographic Characteristics, 2019 CSHP/RWJF Health and Well-Being Poll

	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR
Race/Ethnicity (ref=NH White)				
Non-Hispanic Black	2.48**	2.28**	2.13*	1.52
Hispanic/Latino	1.36	1.07	0.86	0.64
Asian	1.56	0.77	0.70	0.67
Other	1.09	0.99	0.90	0.90
Age (ref=18-29 years)				
30-49	---	0.32***	0.28***	0.29***
50-64	---	0.24***	0.21***	0.20***
65+	---	0.21***	0.17***	0.18***
Men (ref=women)				
Men (ref=women)	---	1.04	1.11	1.12
Nativity/Citizenship (ref=U.S.-born citizen)				
Foreign-born non-citizen	---	0.70	0.65	0.55
Foreign-born citizen	---	1.42	1.31	1.31
Marital status (ref=married)				
Cohabiting	---	1.41	1.28	1.25
Single and never married	---	0.71	0.63	0.64
Widowed	---	0.67	0.63	0.67
Divorced	---	1.23	1.10	1.09
Separated	---	0.82	0.83	0.81
Household size				
Any children in the HH (ref=no)	---	0.74	0.68	0.64
Educational attainment (ref=bachelor's degree)				
Less than high school	---	---	1.04	1.03
High school diploma	---	---	1.16	1.14
Some college	---	---	1.39	1.32
> Bachelor's degree	---	---	1.05	1.09
Poverty status (ref= > 400% FPL)				
0-138% FPL	---	---	1.91*	1.56
>139-400% FPL	---	---	1.60*	1.44+
Don't know/refused	---	---	0.91	0.91
Residential setting (ref=high-income suburban)				
Rural	---	---	---	1.09
Low-income suburban	---	---	---	1.83*
Urban	---	---	---	2.26**
Rent home (vs. own)				
Rent home (vs. own)	---	---	---	1.16

NOTE: ***p<0.001; **p<0.01; *p<0.05; +p<0.10. Data are weighted.

Discussion

Standardized screening tools for health-related social needs (HRSNs) may be usefully incorporated into clinical interviews, as they provide more specific or actionable information regarding health risk than typical sociodemographic factors such as race and socioeconomic status alone. In this project, we endeavored to document the prevalence and correlates of health-related social needs in a statewide population of adults, with an additional focus on disentangling the specific roles of race/ethnicity and SES. Of all groups, non-Hispanic Blacks had the highest and most risk of reporting health-related social needs. For three of the six HRSNs (number of housing problems, utility problems, and interpersonal safety risk), non-Hispanic Blacks were no longer at higher risk after accounting for residential setting and home ownership, suggesting that these two characteristics help mitigate their higher risk of these specific HRSNs. For three HRSNs (housing instability, number of housing problems, transportation problems), initially higher odds among Hispanics/Latinos were entirely eliminated after controlling for SES. These results suggest that public policy interventions that provide more economic resources for this population would reduce their risk of these health-related social needs. It is important to note that even after controlling for residential setting, home ownership, and SES, both non-Hispanic Blacks and Hispanics/Latinos remained at higher risk of food insecurity relative to non-Hispanic Whites. On the whole, Asians and those of other race/ethnic background did not significantly differ from non-Hispanic Whites in the odds of reporting a health-related social need.

A few other trends are important to note. Relative to women, men were at higher risk of housing instability and number of housing problems although there were no gender differences in the remaining four HRSNs. With two exceptions (number of housing problems and any transportation problem, for which being a foreign-born non-citizen is associated with higher risk than U.S.-born citizens), nativity/citizenship was not a significant predictor of HRSNs. As expected, those with lower SES tended to demonstrate lower odds of reporting health-related social needs. Poverty status is a consistent predictor of elevated HRSNs. Educational attainment evinces strong gradient with most HSRNs, although having less than high-school education is associated with very low rates of utility problems. It is not clear why this may be the case. Compared to high-income suburban, urban residents were at higher odds of reporting housing problems and interpersonal safety risk while low-income suburban residents were at lower odds of reporting interpersonal safety risk but lower odds of reporting housing problems.

There was also a generally protective effect of being married, with higher risk of housing instability among divorced, separated, and widowed individuals, higher risk of food insecurity among divorced individuals, and higher risk of housing quality problems among those who are single and never married. These results suggest the importance of interventions specifically targeting those who recently experienced a marital loss, who may find themselves at immediate risk of becoming housing or food insecure.

Conclusions

Implementation of HSRN screening in safety-net clinical settings has considerable potential to promote better health but must be coupled with adequate community resources and public policies to address the identified needs. Reducing eligibility determination and other barriers to enrollment in safety net programs such as the Supplemental Nutritional Assistance Program are critically important. We found high levels of food insecurity, and enrollment in entitlement programs such as SNAP typically fall short of their potential because of enrollment and retention barriers and lack of investment in outreach and public education. Well-functioning HSRN screening coupled with strong referral systems can help mitigate the chronic problem of under-enrollment.

We also found a high prevalence of housing insecurity and high rates of housing problems such as mold and pests. New Jersey has notoriously high housing costs and an aging housing stock, likely exacerbating these rates. In New Jersey and elsewhere, public policies to promote high quality affordable housing have been politically contentious and litigation-prone. Our findings with respect to the apparent protective effect of residential setting and home-ownership re-enforce the need to address this gap.

The high prevalence of HSRNs and embedding HSRN screening in health care setting call the question of whether healthcare financing programs, most notably Medicaid, should pay for addressing identified needs. Given the likely expense of broad payment to address identified social needs, adding new benefits is understandably controversial. In some instances, a case can be made that Medicaid funding to address social needs, for example supportive housing for people experiencing chronic homelessness, can be at least partly offset by lower emergency department and avoidable hospital use (National Academies of Sciences, Engineering, and Medicine, 2018). But the argument that paying to address HSRNs broadly by Medicaid “pays for itself” has in most cases not been firmly established and may distract from the fundamental argument that the returns from funding programs to address these needs is better health and well-being of at-risk populations.

Our study was conducted in 2019, well before the devastating impacts of the COVID-19 pandemic. There is no doubt that the rates of HSRNs that we observed were greatly elevated by the pandemic. The direct impact of the virus and its economic fallout has disproportionately affected the very populations that we should have been observing high rates of HSRN before the crisis (Artiga *et al.*, 2020). The pandemic, coupled with the reinvigorated racial justice movement following the deaths of George Floyd and Breonna Taylor, have elevated public debate about addressing systemic health and social disparities. Findings about the prevalence and extent of HSRNs offers guidance on where new social investments can improve the health and lives of millions of Americans.

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