UCONN HEALTH
HEALTH DISPARITIES INSTITUTE

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SOCIAL DETERMINANTS OF HEALTH REPORT

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Introduction

The social determinants of health (SDOH) are referred to as "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."[I] Research indicates an estimated 70% of variation in health outcomes are attributable to SDOH. [II] Moreover, SDOH are a major driver of hospital readmissions among patients with complex health care needs.[III] The recognition of the impact of SDOH combined with payer policy shifts have given rise to SDOH screening efforts among health systems. Such efforts can facilitate patient linkage to community resources such as food, transportation, housing advocacy, employment training and childcare that support health, wellbeing and economic stability.[IV] SDOH screening can create critical health promoting connections between health systems, patients and community-based agencies.[V]

This report describes social factors impacting patients at UConn Health and is intended to inform institutional efforts to address SDOH to improve patient health and advance health equity. The UConn Health Population Health Office adapted and implemented a health-related social need screening tool and sought to use these data to 1) better understand patient need and 2) develop responsive interventions to advance patient health and health equity. The UConn Health Disparities Institute (HDI) supported the Population Health Office in the areas of data analytics, interpretation and planning. In addition, HDI helped the office to identify strategies known to be effective in addressing patient social need to inform planning efforts. This collaboration harnesses the strengths and talents of both teams to better meet the institutional mission of *helping people achieve and maintain healthy lives and restoring wellness/health to maximum attainable levels.*

In the sections that follow we describe the Population Health Office and provide background information on SDOH followed by a detailed description of the methods. The findings are then presented accompanied by a high-level summary of key take-a-ways. The report culminates with a series of recommendations and strategies for addressing patient social need based on what is known to be effective.

Population Health Office

UConn Health's Population Health Office, established in 2019, is committed to breaking barriers to care and promoting patient access. The Population Health Office works to improve patient health and wellbeing by addressing SDOH, providing education on preventative care and disease management, and connecting patients with resources and support in the community. The team, an interdisciplinary group of 20 providers and staff, includes three clinical patient navigators, three community health specialists, two social workers, two nurse educators, a pharmacist, a data scientist, an analyst, and a management team. The Population Health Office is recognized as a Patient Centered Medical Home with primary care locations in Canton, East Hartford, Farmington, Simsbury, Southington, Storrs, Torrington, West Hartford, and Willimantic. Operating as a Medical Home gives the Population Health Office the unique ability to act as a proxy between the patient and their clinical care team offering care for short- and long-term illnesses.

Social Determinants of Health (SDOH)

Healthy People 2030, U.S. Department of Health and Human Services (HHS), and initiative that aims to improve the health and well-being of United States population, elevates the critical importance of SDOH: including education access and quality, health care access and quality, economic stability, social and community context, and neighborhood and built environment seen in *Figure 1. Social Determinants of Health.* [VI]

FIGURE 1

Social Determinants of Health

Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion.

The shift over the last two decades from acute care models to chronic disease management gave rise to an increasing focus on SDOH. SDOH are the conditions within which people live, work and play; they are contextual factors that influence individual health and wellbeing, such as education, economic stability, and living, social and work environments.[VII] Studies indicate nearly half of deaths nationally are attributable to social factors, thus making SDOH a critical focus area for public health.[VIII] In addition, the Centers for Disease Control and Prevention (CDC) note, "SDOH have been shown to have greater

influence on health than either genetic factors or access to healthcare services".[IX] Because living environments are shaped by economics and policies, agendas, and social norms that are highly racialized;[X] a focus on SDOH is also anticipated to advance health equity.

The Patient Protection and Affordable Care Act (ACA) (P.L.111–148), created a new framework for health care delivery and financing, grounded in the Triple Aim of lower cost, increased efficiency and improved population health and health equity,[XI] including the Accountable Care Organization (ACO). The ACA elevated the importance of addressing SDOH, and the ACO model provided a mechanism for hospitals to leverage community partnerships as a strategy for both improving patient care and optimizing financial reimbursement.[XII] Thus, the ACA was an important catalyst for shifting the primary focus away from gaps in coverage to creating spaces to allocate resources effectively to address the social determinants of health.

SDOH are increasingly recognized by health care delivery organizations and insurers. For example, SDOH screening during medical visits is now recommended by payers including Centers for Medicaid and Medicare Services (CMS). Payer attention to SDOH coupled with an improved understanding of their significance for the public's health and wellbeing has catalyzed the adoption of strategies for screening, documenting, and addressing the impacts of SDOH on patient health and wellbeing by health systems. Health systems assess the impacts of SDOH on patient health and wellbeing by screening for health-related social need such as food and housing insecurity, the impact of transportation on access to medical care, inability to pay for prescriptions, worry about financial stability, and barriers to education, employment and childcare, which are associated with poor health and wellbeing. [XIII]

Methods

The UConn Health Population Health Office screener was first administered among Primary Care locations in July of 2019 and was introduced as part of the Medicare Annual Wellness visit. The initial screener focused on three domains: food insecurity, transportation, and housing. In 2022, the screener was adapted to include Women's Health and 2023 marked the first pilot test of the adapted screener through UConn Health's

TABLE 1

SDOH Screener

SDOH	Screening Question	Response Options
Food Insecurity*	Within the past 12 months, the food you bought just didn't last and you didn't have money to get more. Within the past 12 months, you worried that your food would run out before you got the money to buy more.	• Never true • Sometimes true • Often true
Transportation	In the past 12 months, has lack of transportation kept you from medical appointments or from getting medication?	• Yes • No
Housing	Are you worried that in the next 2 months you may not have stable housing?	• Yes • No
Financial Resource Strain	How hard is it for you to pay for the very basics like food, housing, medical care, and heating?	• Very hard • Hard • Somewhat hard • Not very hard • Not hard at all
Utilities	In the past 12 months, has the electric, gas, oil, or water company threatened to shut off services in your home?	• Yes • No • Already shut off

*The screener uses two food insecurity questions, one that assesses if a patient ran out of food and another that assesses if they are worried this might happen in the future. The same response options are used for both questions.

Neurology Department amongst their Multiple Sclerosis (MS) Population. Fast forward to February 2024, the screener was adapted and refined to include six SDOH domains: food insecurity, transportation, housing, utilities, financial resource strain and intimate partner violence. The final six domain survey was then administered to inpatient units of John Dempsey Hospital and at all new patient visits in all ambulatory practices.

This analysis includes data from January 1st–December 31st, 2023.

Table 1. SDOH Screener outlines the SDOH screened for by the department. Response options are both dichotomous yes/no and Likert-type. The screener itself does not include demographic items, however, demographic information including race, ethnicity, age and gender are available in the medical record.

Screening Process

In the outpatient setting, Medical Assistants (MAs) administer the screener and enter the data directly into the electronic medical record platform (EPIC) at the beginning of the visit. In cases in which a patient screened positive for any given social need, the MA is prompted to inquire if the patient is interested in receiving additional support addressing the need from a community health specialist on staff with Population Health. A yes response from the patient triggers a direct referral to Population Health where the referral and screening data are reviewed by an on-site community health specialist who directly follows up with the patient and links them with relevant community resources.

Please see a list of the most frequent patient referrals that Population Health makes to community-based organizations and their services and resources in Table 2. Referrals to Community-Based Organizations and Services.

Analytic Methods

HDI analyzed the 2023 SDOH screening data from John Dempsey Hospital, including both inpatient and outpatient

TABLE 2

Most Frequent Referrals to Community-Based Organizations and Services

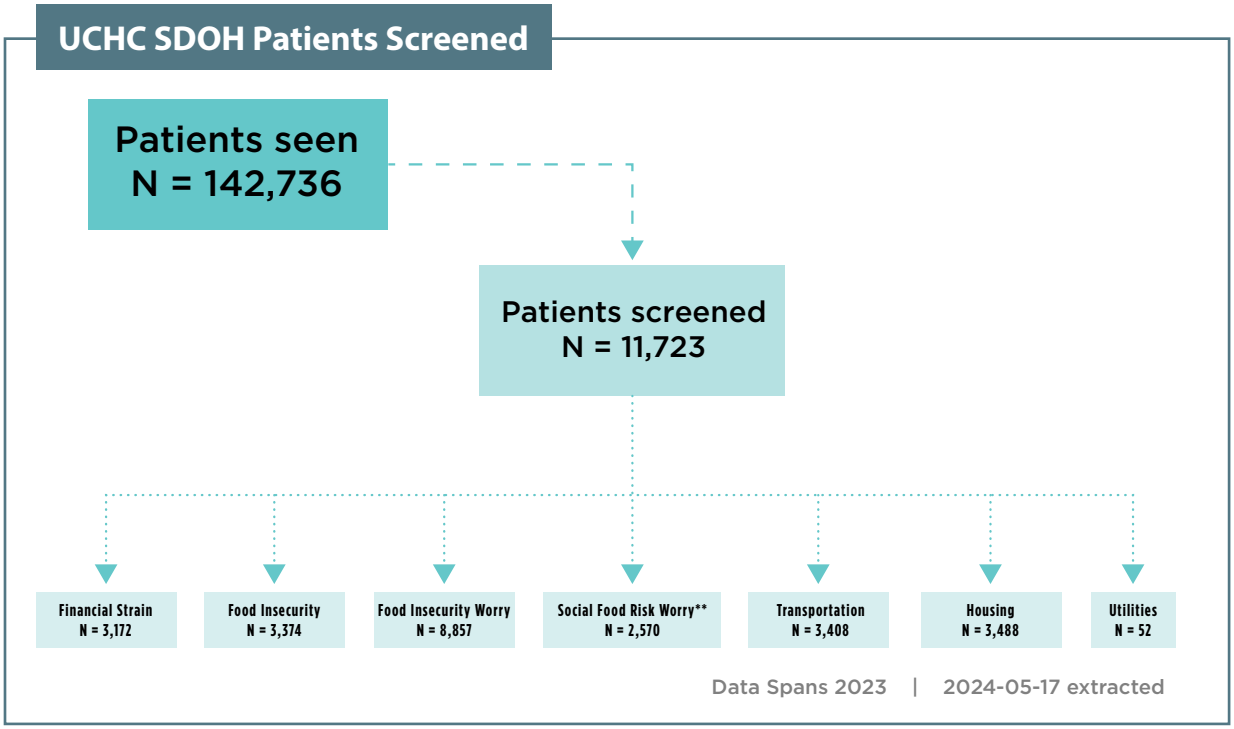
Community-Based Organization	Services and Resources
New Opportunities Inc.	• Energy Assistance and Weatherization • Fatherhood Initiative • Employment Education and Training • Child Welfare and Family Development Services • Early Childhood Education Programs • Elderly Services • Homeless Shelter and Rapid Re-housing • Ex-Offender Programs and Re-entry Services
Access Community Action Agency	• Food Resources • Affordable Housing Programs • Employment Services
Catholic Charities Archdiocese of Hartford	• Family Centers • Emergency Assistance Programs • The Institute for the Hispanic Family • Behavioral Health Clinic with Charter Oak Health Center
Hispanic Health Council	• Community Nutrition Center • Compassion Center • Family wellness Center • Health Protection & Education Center • Maternal and Child Health Center • Migrant Health Clinic and Welcome Center
The Friendship Center	• Food and Shelter • Community Outreach and Homelessness Prevention at Hope Connection Center • Supportive Housing
My Sister's Place	• Supportive Housing • Housing Mobility Counseling • Security Deposit Programs
MTM Health (formerly Veyo)	• Non-Emergency Medical Transportation (NEMT)
Connecticut ADA Service Providers	• Elderly and Disabled adult transportation services
ITN Central CT	• Senior transportation services
Mobile Foodshare Program	• Food assistance

clinical units, provided by UConn Health Population Health Office.

Once all responses were collected, the data were compiled and separated by question accounting for the number of clients that screen positive out of the total screened. To assist with data analysis and interpretation, the variables were recoded and analyzed in Stata v. 18; e.g. 'language' was recoded into English vs. not-English (43 languages were listed in the raw data, including Spanish). Three 'Food insecurity' questions were also combined, by building a 'positive on any of the 3 questions' aggregate (Responses of 'Sometimes true' or 'Often true' on any question were defined as positive, and responses of 'Never true' on all three questions were defined as negative). Chi-squared tests of differences between 2 categorical variables were used to compare the SDOH responses, by categories race & language; the degrees of freedom vary, e.g. for the 5 categories Not hard at all; Not very hard; Somewhat hard; Hard; Very hard, vs. 8 race categories df = 20, or vs. 2 language levels df = 4; in graphs only significant differences were marked (customary $p < .05$).

Results

FIGURE 2



Of all 142,736 patients seen, a total of 11,723 patients responded to the SDOH screener. The number of patients who responded to each SDOH question differed by question, as can be seen in Figure 2. UCHC SDOH Patients Screened.

Of the patients who responded to at least one question on the screener, a total of 639 patients screened positive for at least one health-related social need.

Demographics

The demographics of the patients who were screened for health-related social needs is summarized in Table 3. Patient Demographics below. Most patients who responded to the screener were female, White, English-speaking, and over the age of 65 years.

Some patients were more affected than others overall by health-related social needs. Patients who reported a disproportionate

TABLE 3

Patient Demographics

Patient Characteristic	Total Patients Screened (N)	Screened Positive		Screened Negative	
	N	N	(%)	N	(%)
Gender	**11,633**	**639**	**100%**	**10,994**	**100%**
Male	4,691	209	32.70%	4,447	40.40%
Female	7,028	430	67.30%	6,543	59.50%
Not Listed	3	---	---	3	0.03%
Race/Ethnicity	**11,632**	**639**	**100%**	**10,993**	**100%**
American Indian or Alaska Native	8	2	0.31%	6	0.05%
Asian	475	21	3%	447	4%
Black/African American	1,065	138	22%	915	8%
Hispanic/Latino	1,226	134	21%	1072	10%
Native Hawaiian or Other Pacific Islander	5	---	---	5	0.05%
White	9,098	368	58%	8,674	79%
Another race/ethnicity	1,085	112	18%	958	9%
Unknown	127	5	0.90%	131	1.10%
Declined	126	8	1.20%	117	1.00%
Language	**13.113**	**788**	**100%**	**12,325**	**100%**
English	11,083	581	90.90%	10421	94.80%
Spanish	344	37	5.80%	301	2.70%
American Sign Language	59	9	1.40%	50	0.50%
Any other language	26	12	1.90%	222	2%
Age Groups	**11,633**	**639**	**100%**	**10,994**	**100%**
15–24	312	28	4%	284	3%
25–34	817	60	9%	757	7%
35–44	896	72	11%	824	7%
45–54	942	98	15%	844	8%
55–64	1,323	130	20%	1193	11%
65–74	3,884	152	24%	3732	34%
75+	3,457	98	15%	3359	31%

burden of need across all domains included those who:

- Identified as female
- Identified as Black, Hispanic/Latino, or another non-White race/ethnicity
- Preferred Spanish language or American Sign Language; and
- Were under 65, particularly those 35–64 years old.

Please refer to Appendix 1 for visuals.

Social Determinants of Health

Please see Table 4. Frequencies of Reported Social Needs for a detailed breakdown of patients who screened positive and negative for these health-related social needs. Please see Appendix 1 for additional visuals.

**A combination of the three food insecurity variables was created by counting any of the initial responses as valid response in the combined measure. The numbers reflect distinct patients.*

***The social risk food insecurity worry screening question has been removed from Epic and is now inactive due to its similarity to the food insecurity worry question.*

TABLE 4

Frequencies of Reported Social Needs

SDOH	Total number of patients screened N	Screened Positive N (%)	Screened Negative N (%)
Food Insecurity*	11,502	392 (3%)	11,110 (97%)
Food Insecurity Worry	8,857	291 (3%)	8,566 (97%)
Food Insecurity Ran Out of Food	2,570	41 (2%)	2,529 (98%)
Social Risk Food Insecurity Worry**	3,374	110 (3%)	3,264 (97%)
Financial Resource Strain	3,172	263 (8%)	2,909 (92%)
Transportation	3,408	129 (4%)	3,279 (96%)
Housing	3,488	72 (2%)	3,416 (98%)
Utilities	52	3 (6%)	49 (94%)

Summary of Key Takeaways

Our primary objective in identifying patient social need was to inform institutional efforts to improve patient health and advance health equity. Highlighted below are the key take-a-ways from the 2023 SDOH screener that will be used to plan with the Population Health Office and to identify partners as well as programmatic and policy initiatives and interventions.

We observed statistically significant differences among patients who screened positive for each health-related social need. The patients disproportionately affected by each social need is reported below:

- **Food insecurity:** Hispanic/Latino and Black, Spanish and other non-English language preferred, women, and younger patients (i.e., average age less than 60 years old).
- **Financial resource strain:** Black and Hispanic/Latino, Spanish and other non-English language preferred, women, and younger patients (i.e., average age 53 years and less).
- **Transportation need:** Black and Hispanic/Latino patients, as well as those who identified with another non-White race/ethnicity. Patients between the ages of 55–74 years old also reported disproportionate transportation need.
- **Housing need:** Black and Hispanic/Latino patients, as well as those who identified with another non-White race/ethnicity. Patients between the ages of 15–64 years old also reported disproportionate housing need, with the need concentrated at both the younger and older ends of the spectrum.

- **Utilities need:** The sample size was too small to look at disaggregated data.

In summary, food insecurity was the most frequently referenced SDOH among those screened, followed by financial resource strain, indicating the most urgent points of intervention for the UCHC patient population. However, this may be due to earlier versions of the screener which were focused on food security. Moreover, food security and financial resource strain are linked. Nonetheless, food security nationally although lower in the northeast has been on the rise. In 2023 an estimated 13.5% of households were food insecure.[XIV] Consistent with national trends we found the patients of Black and Hispanic/Latino patients were more likely to report experiencing food insecurity. In fact, patients of color and Spanish-speaking patients were disproportionately impacted by health-related social needs overall. This finding is consistent with the literature and points to priority populations for programming and systems redesign as well as the need to advance health equity. Housing insecurity, which is commonly cited in the literature as impacting patient health, was referenced less frequently among our patients. This may be associated with the geographic areas in which the primary care clinics that served as the screening sites are located. These areas across the state have varying levels of housing need (e.g., high housing insecurity, low home ownership rate, high cost-burden rate), so it is difficult to determine if geography is a driver of this finding. Furthermore, our reporting is limited to clinic locations, which are only proxies for where patients live and experience housing need.

Recommendations

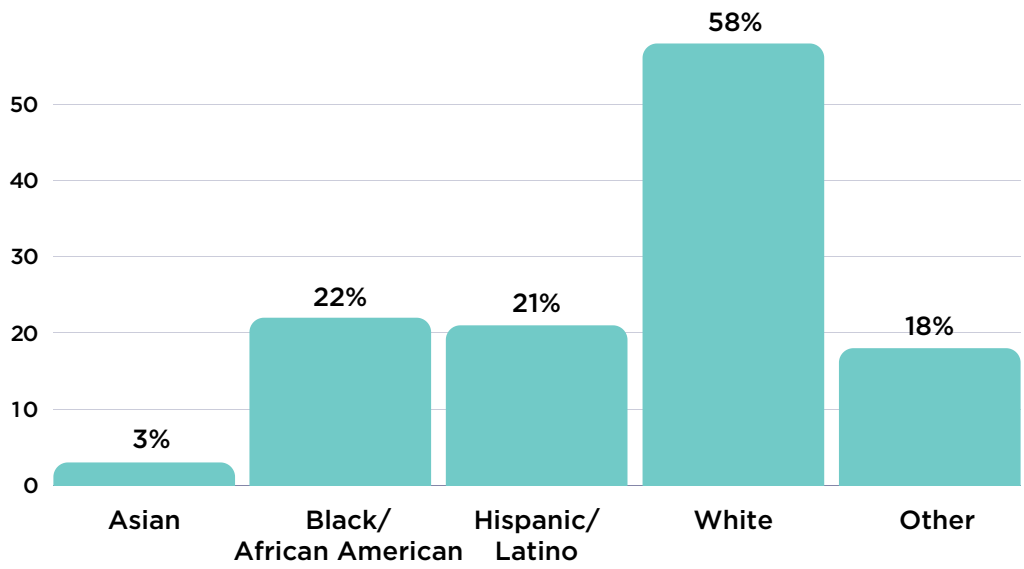
Based on the analysis of preliminary SDOH data from 2023 we have identified three preliminary recommendations to address patient social need and advance health equity.

1. Like others we identified patients of color were disproportionately impacted by social need, were most frequently presented as food insecurity and financial resources strain, which are highly linked. As such, we recommend focused programming and community partnerships designed to link patients with food resources. Models from the literature highlight the need for community partnerships and tapping into existing state and local resources. One example includes a resource hub in the hospital where patients can be linked to SNAP benefits training programs and other local programs. [xv]
2. We found Spanish-speaking patients are disproportionately impacted. We recommend focused partnerships with the Hispanic Health Council, a local organization that provides health, wellness and advocacy services, or similar organizations.
3. This analysis was of preliminary pilot data. We recommend ongoing analysis as screening becomes more universal across the institution, as well as a more in-depth analysis that explores chronic conditions as an additional variable. Particularly given that the literature indicates SDOH impacts both treatment-seeking, follow-up and medication adherence. We also recommend exploring data related to linkage to services as a way of exploring the impact of screening as well as potential cost benefit analysis.

Appendix 1: Detailed Results

Demographics

SDOH Demographics: Race/Ethnicities



Source: UConn Health Population Health, 2023

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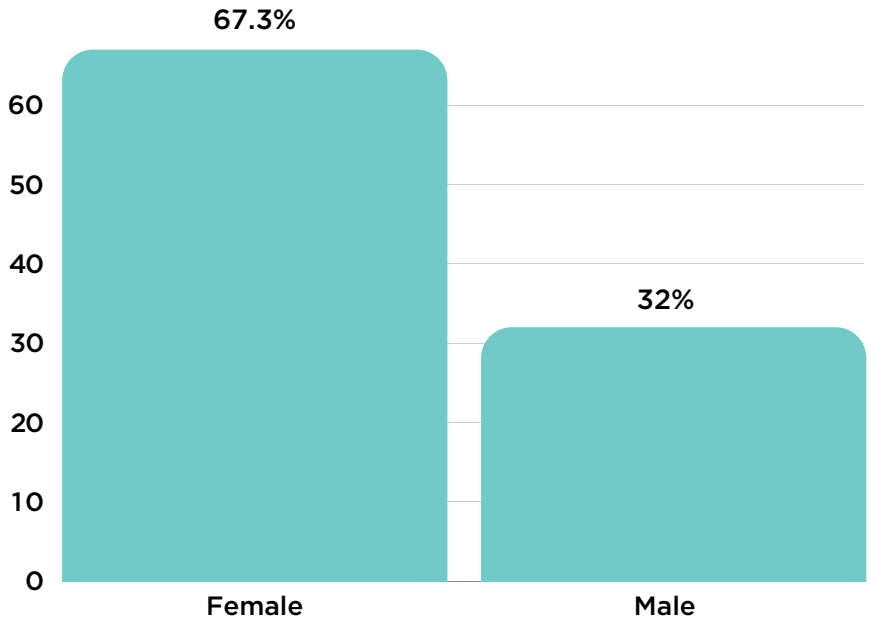
SDOH Demographics: Gender



Source: UConn Health Population Health, 2023

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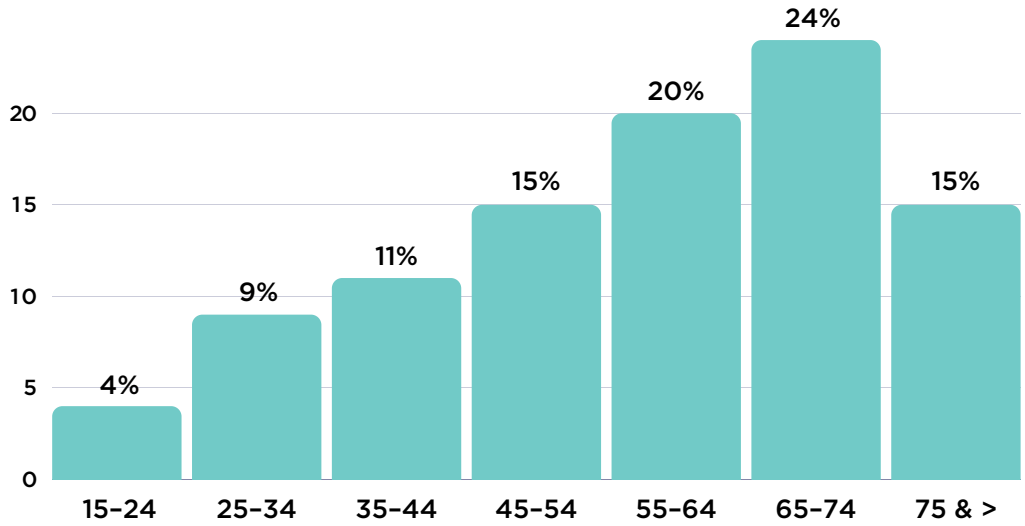
SDOH Demographics: Age



Source: UConn Health Population Health, 2023

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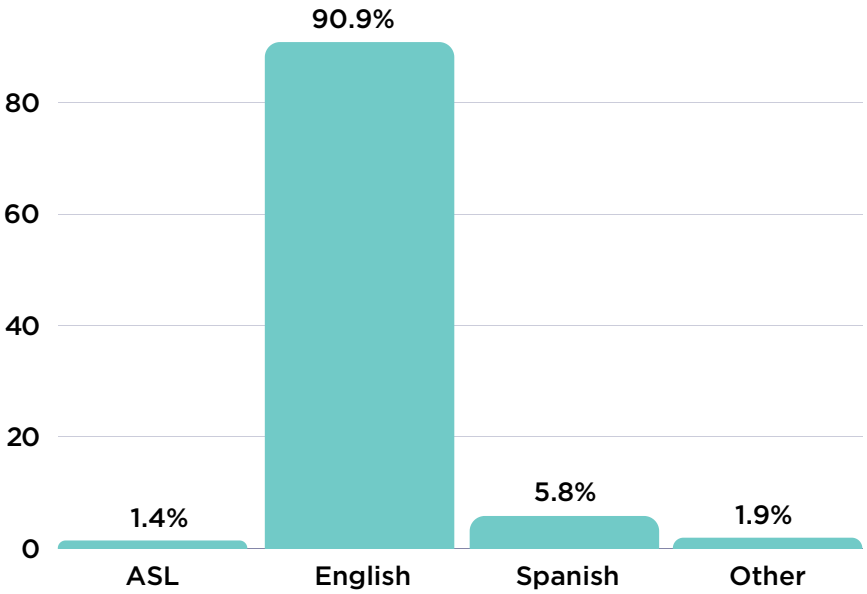
SDOH Demographics: Language



Source: UConn Health Population Health, 2023

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Languages

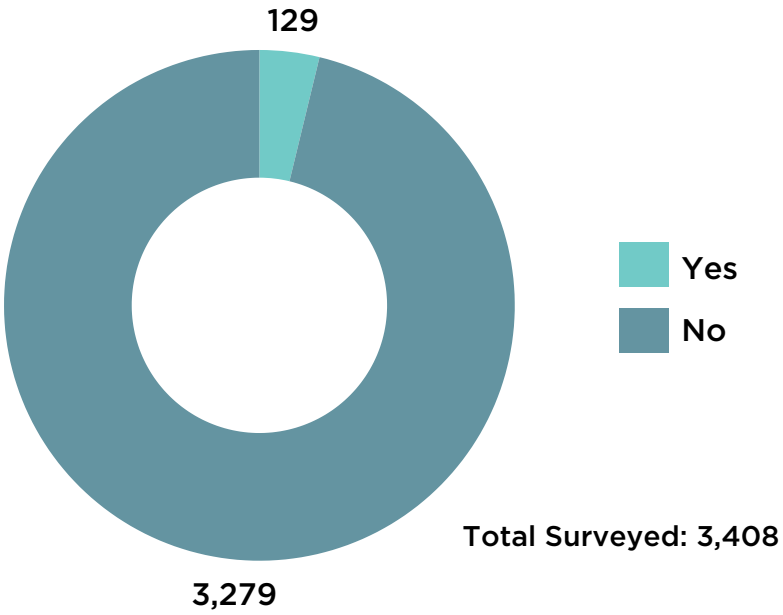
A total of 43 languages were reported by patients who responded to the screener. A full list is included below:

Language	Frequency	Percent
English	11,083	94.54
Spanish	344	2.93
Sign Language	59	0.50
Non Verbal	26	0.22
Vietnamese	25	0.21
Mandarin	21	0.18
Chinese	20	0.17
Polish	15	0.13
Portuguese	15	0.13
Unknown	13	0.11
Russian	11	0.09
Gujarati	9	0.08
Albanian	8	0.07
Arabic	8	0.07
Korean	7	0.06
Nepali	7	0.06
Bengali	4	0.03
Haitian	4	0.03
Japanese	4	0.03
Bosnian	3	0.03
Cantonese	3	0.03
Hindi	3	0.03

Language	Frequency	Percent
Other	3	0.03
Greek	2	0.02
Italian	2	0.02
Lao	2	0.02
Panjabi	2	0.02
Persian	2	0.02
Somali	2	0.02
Ukrainian	2	0.02
Urdu	2	0.02
Central Khmer	1	0.01
Decline to Answer	1	0.01
French	1	0.01
Hungarian	1	0.01
Kannada	1	0.01
Karen	1	0.01
Lip Reading English	1	0.01
Romanian	1	0.01
Tagalog	1	0.01
Tamil	1	0.01
Turkish	1	0.01
Twi	1	0.01

Social Determinants of Health Needs

SDOH: Transportation Need



Source: UConn Health Population Health, 2023

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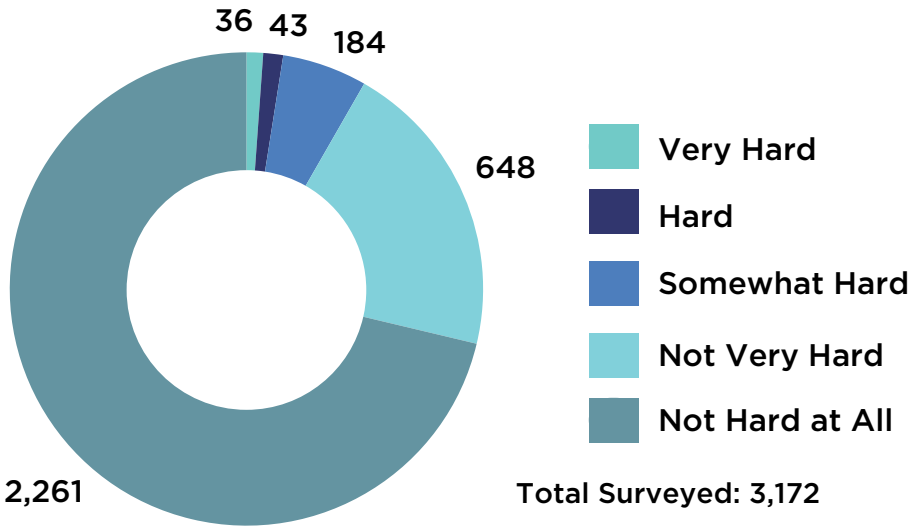
SDOH: Financial Resource Strain



Source: UConn Health Population Health, 2023

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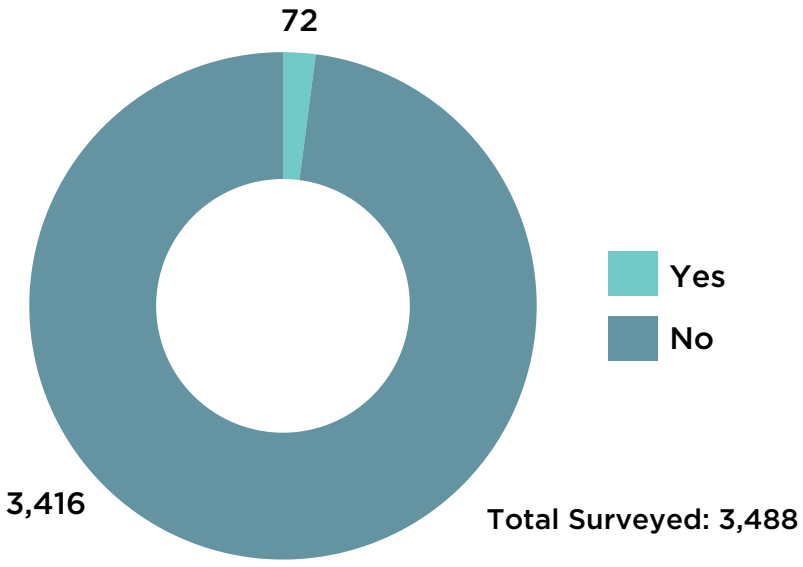
SDOH: Housing



Source: UConn Health Population Health, 2023

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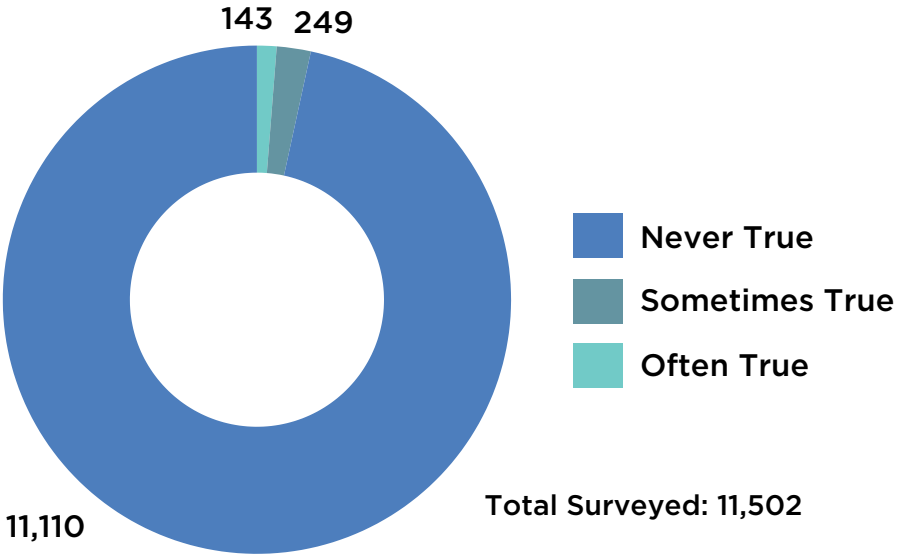
SDOH: Food Insecurity



Source: UConn Health Population Health, 2023

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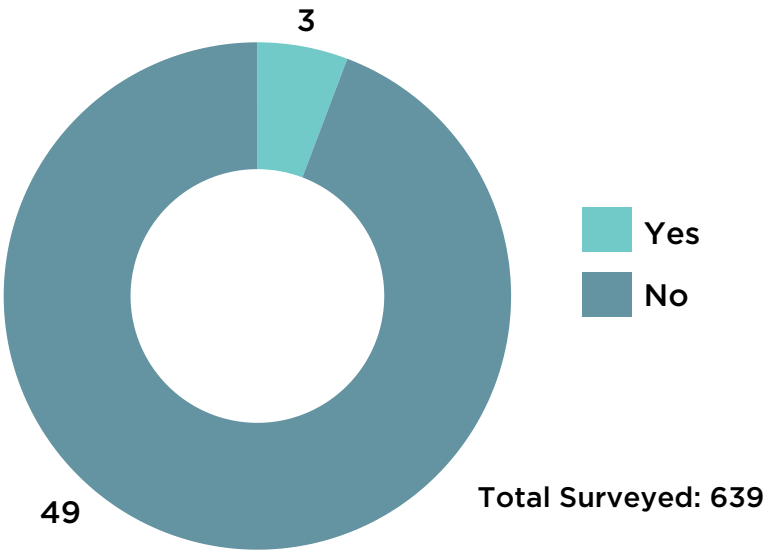
SDOH: Utilities



Source: UConn Health Population Health, 2023

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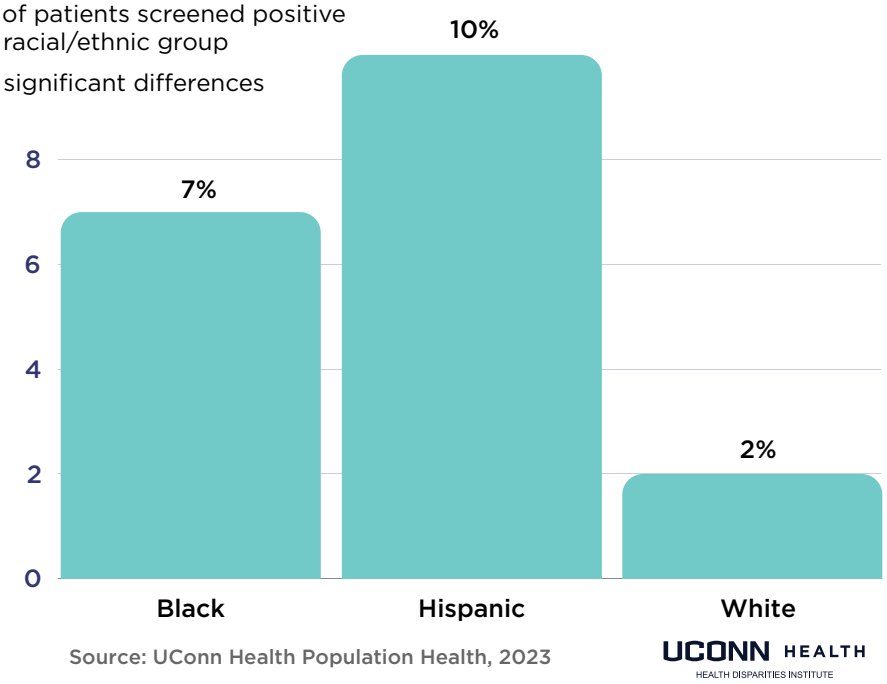
Social Determinants of Health Needs by Patient Demographics

Note: We could not examine utilities need data by patient demographics because the sample size was too small.

Food Insecurity by Race/Ethnicity

- Percentage of patients screened positive within each racial/ethnic group
- Statistically significant differences



Source: UConn Health Population Health, 2023

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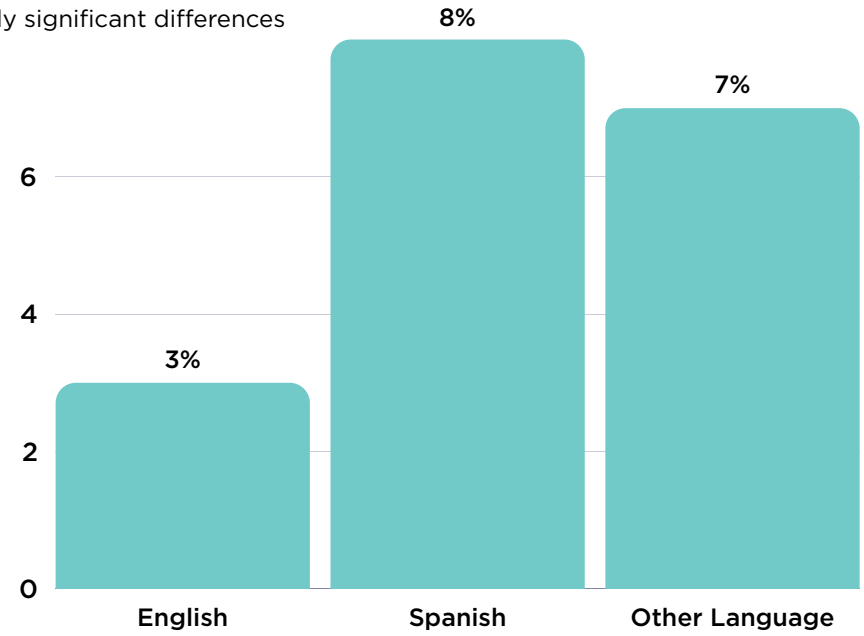
Food Insecurity by Language

- Statistically significant differences



Source: UConn Health Population Health, 2023

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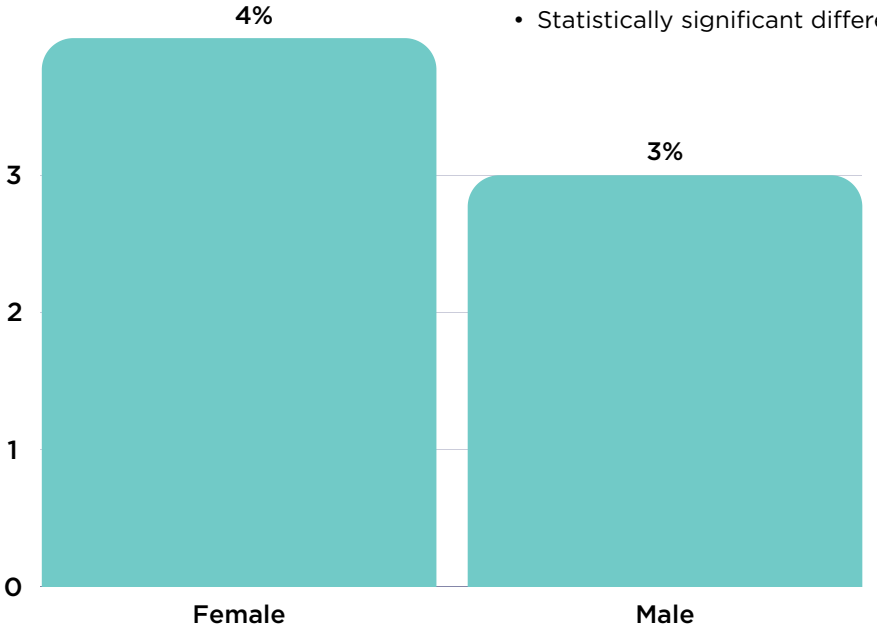
Food Insecurity by Gender

- Statistically significant differences



Source: UConn Health Population Health, 2023

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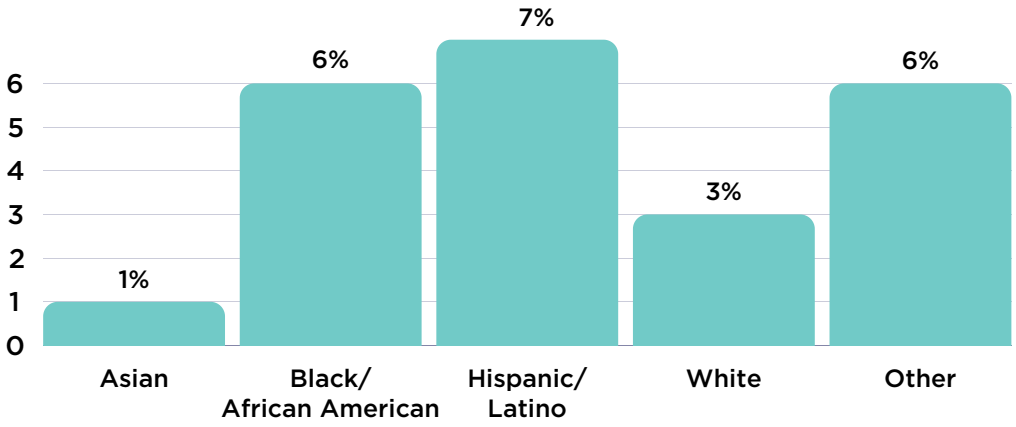
Food Insecurity by Age

Younger patients seemed to screen positive on the 3-questions food insecurity composite: average ages of the three responses were 'Never true' 64.3 years old, 'Sometimes true' 58.9 years old, 'Often true' 54.6 years old ($F(2) = 32.4$, $p < .001$).

Transportation Need by Race/Ethnicity

- Percentage of patients screened positive within each racial/ethnic group
- Statistically significant differences only by race



Source: UConn Health Population Health, 2023

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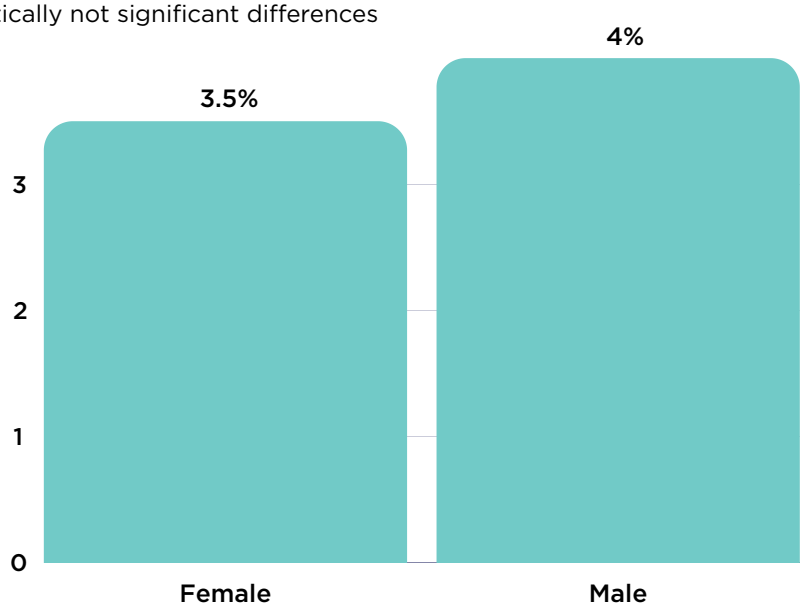
Transportation Need by Gender

- Statistically not significant differences



Source: UConn Health Population Health, 2023

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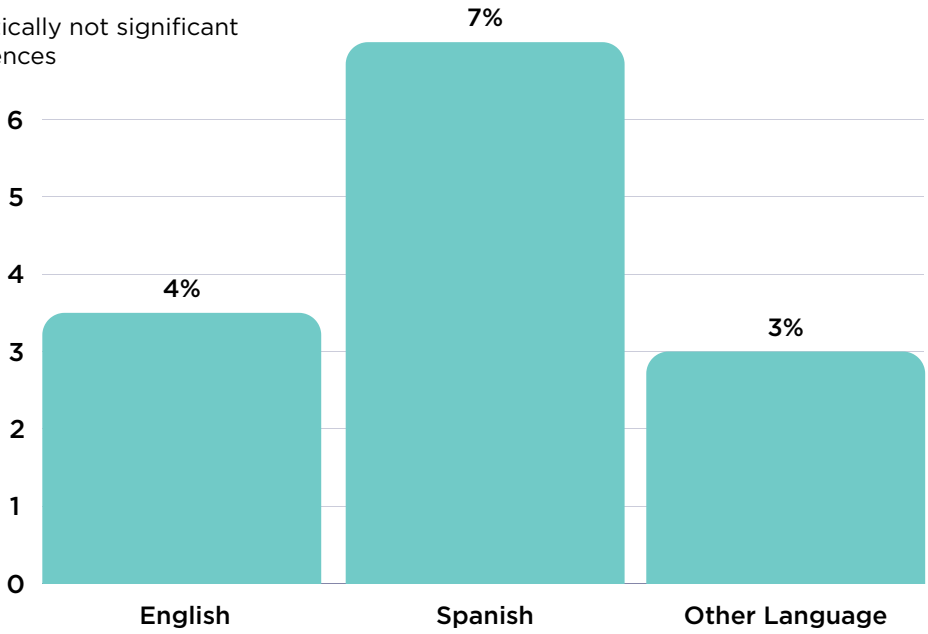
Transportation Need by Language

- Statistically not significant differences



Source: UConn Health Population Health, 2023

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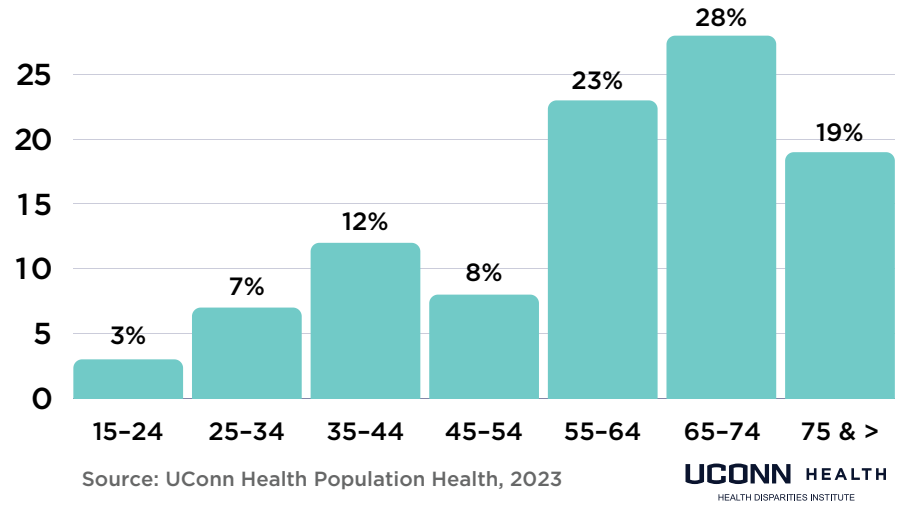
Transportation Need by Age

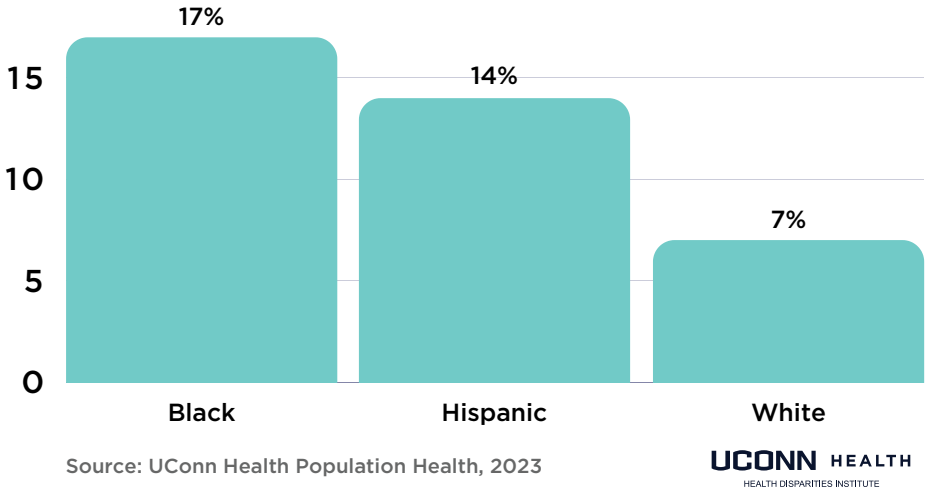
- Percentages are of all answers within each age group



Source: UConn Health Population Health, 2023

Financial Resource Strain by Race/Ethnicity

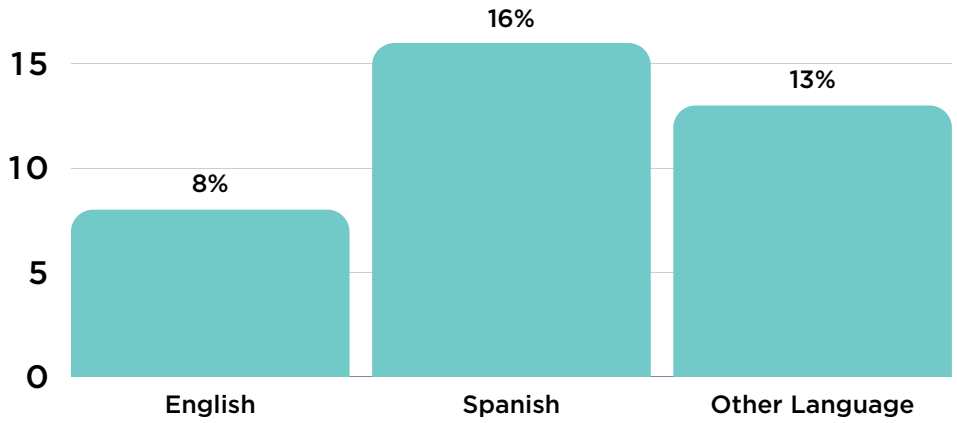
- Statistically significant differences by race



Source: UConn Health Population Health, 2023

Financial Resource Strain by Language

- Statistically significant differences English vs. non-English vs. Spanish



Source: UConn Health Population Health, 2023

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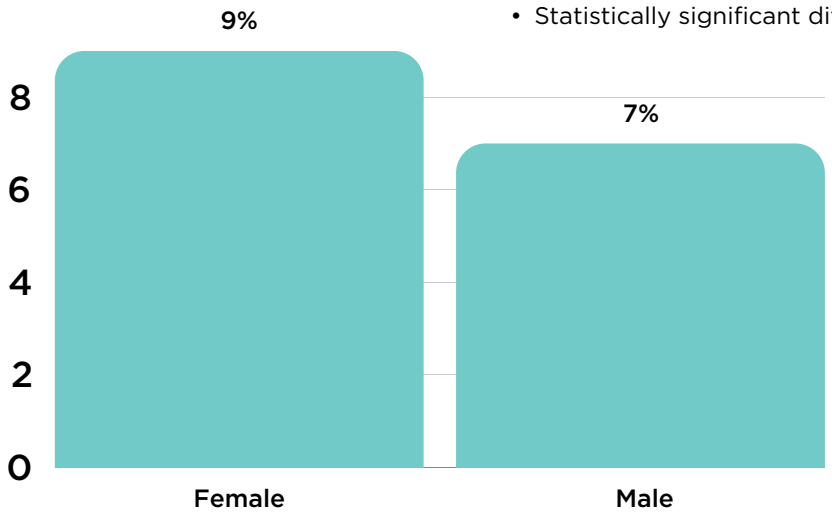
Financial Resource Strain by Gender

- Statistically significant differences



Source: UConn Health Population Health, 2023

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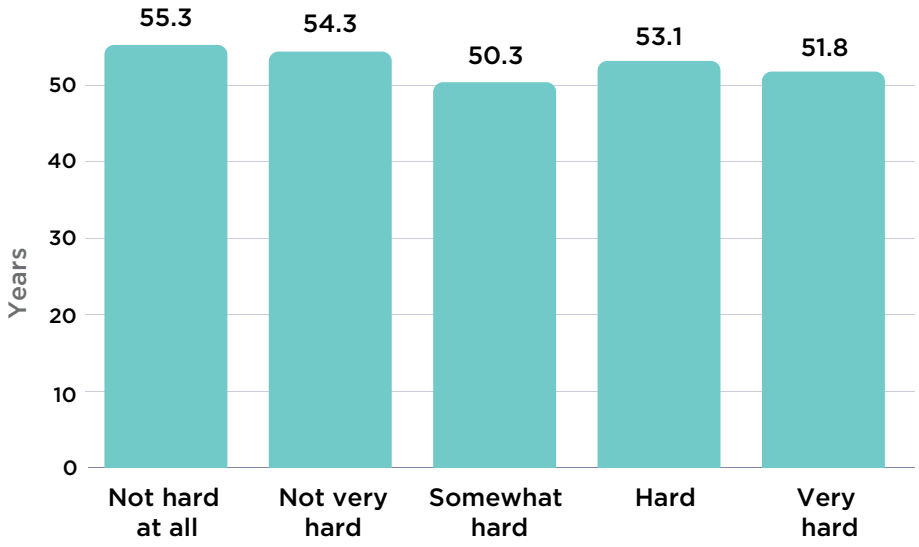
Average Ages of Financial Resource Strain Responses

- Statistically significant differences: F(4) = 3.38, p = .009



Source: UConn Health Population Health, 2023
11-01-2024

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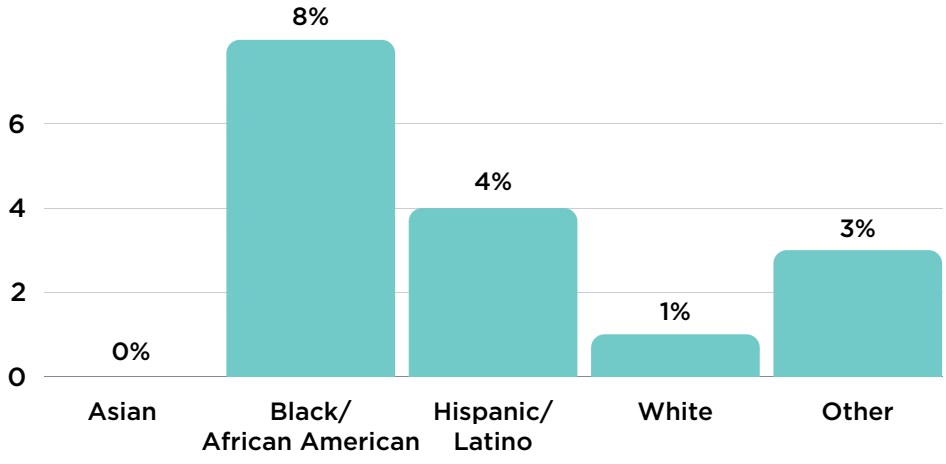
Housing Need by Race/Ethnicity

- Statistically significant differences only by race
- Percentage of patients screened positive within each racial/ethnic group



Source: UConn Health Population Health, 2023

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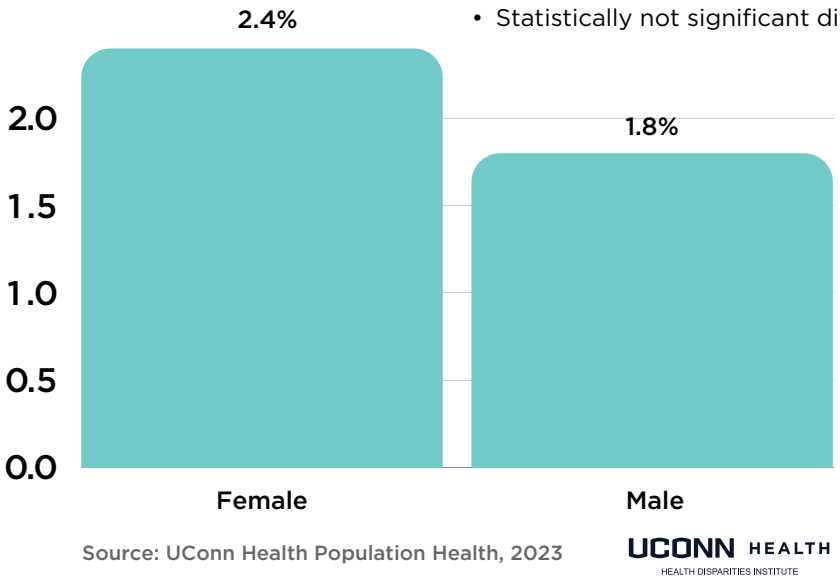
Housing Need by Gender



• Statistically not significant differences

Source: UConn Health Population Health, 2023

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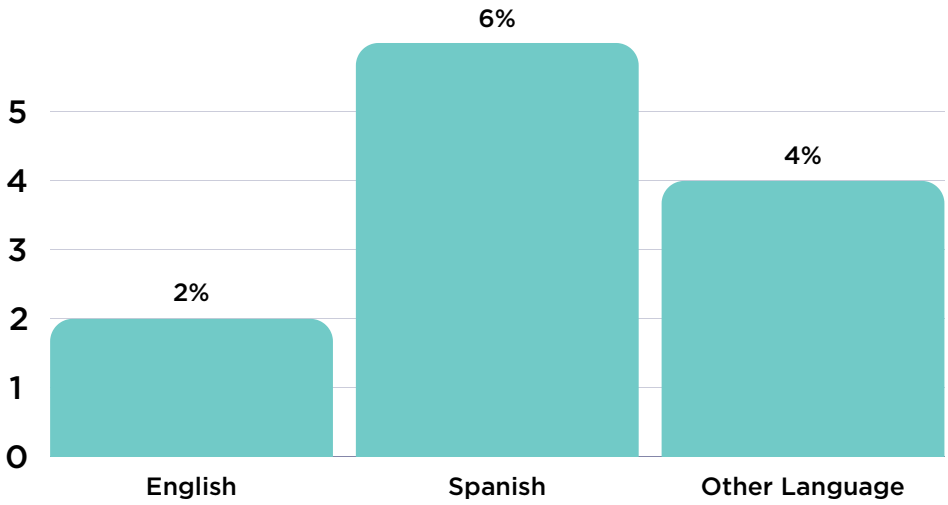
Housing Need by Language

• Statistically not significant differences



Source: UConn Health Population Health, 2023

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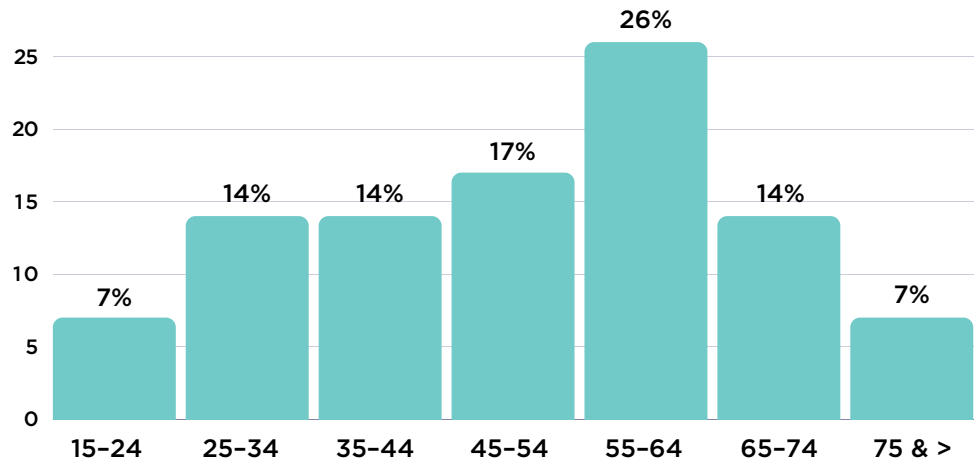
Housing Need by Age

- Percentage are of all answers within each age group



Source: UConn Health Population Health, 2023

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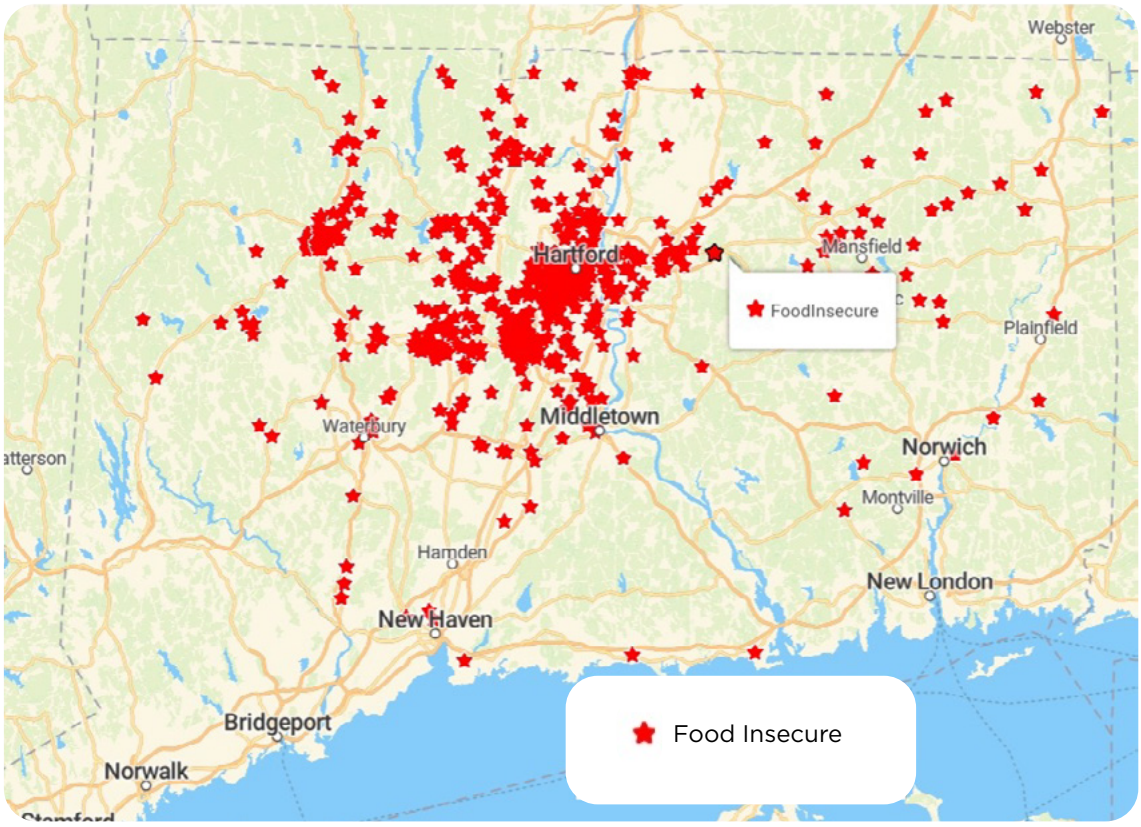
Geographic Distribution of Food Insecurity



Created 8/27/2024 by Emil Coman

Endnotes

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