Unmet Social Needs and Emergency Department Use in an Im/migrant Cohort at an Urban Safety Net Institution

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Short Report

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Abstract

Im/migrants are a vulnerable population who face numerous social barriers. These barriers likely contribute to unmet social needs, which may increase avoidable health care utilization such as emergency department (ED) visits. Within an im/migrant cohort at a large urban safety-net hospital (N = 1405 patients), we describe types and levels of unmet social needs, and estimate the relationship between level of unmet social needs and ED visit rates. Food insecurity was the most prevalent reported social need (30%), followed by educational needs (29%); employment needs (19%); barriers to paying for medications (18%); lack of transportation (17%); and housing insecurity (10%). After adjusting for sociodemographic factors, having ≥ 4 unmet social needs was associated with an additional 249.47 visits/1000 im/migrant patients/year (95% CI 15.95-482.99, *p*-value = 0.036), relative to those with no reported needs. Our findings emphasize the importance of rigorously assessing and addressing social needs within im/migrant populations, which may narrow disparities in ED use.

Background

Im/migrants are a highly vulnerable population at risk for significant health disparities. Past research has demonstrated that they have high rates of post-traumatic stress disorder, depressive and anxiety disorders, and chronic diseases that are exacerbated by an inability to access health care while fleeing their natal countries or seeking asylum **(1)**. These individuals face numerous social and political barriers post-migration; for example, asylum seekers must wait a year after filing for asylum before they can officially apply for a work permit **(2)**. More broadly, foreign-born persons often face barriers in accessing social safety net programs due to administrative burdens; language, literacy, or cultural barriers; and climates of fear and mistrust **(3)**. Collectively, these barriers likely contribute to unmet social needs (e.g., food insecurity, housing insecurity), which in turn may increase avoidable health care utilization such as emergency department visits **(4)**.

To help understand and address unmet social needs within vulnerable populations, social determinants of health (SDOH)-focused patient reported outcomes (PROs) and referral systems have been increasingly used in research and clinical practice **(5)**. However, there is little empirical evidence how unmet social needs in im/migrant populations are associated with health care utilization **(6)**. Yet, assessing this population for unmet social needs and factors related to SDOH is important given the legal and systemic barriers that im/migrants may face upon arrival to the US.

To help meet these needs, the Boston Medical Center (BMC) Immigrant and Refugee Health Center (IRHC) provides a full spectrum of medical, mental health, and obstetrics healthcare, along with social services and legal referrals for foreign-born patients who may benefit from assistance navigating and accessing health services in the US. It is housed within BMC—a large, urban safety-net teaching hospital in Boston, MA, and IRHC-associated providers work across many departments including General Internal Medicine, Family Medicine, Obstetrics and Gynecology, and Psychiatry. To measure unmet social needs among patients, BMC uses the THRIVE—a brief, paper-based, SDOH-focused patient reported outcome (PRO) survey that measures eight areas of unmet social need related to housing, food, affording medications, transportation, utilities, caregiving, employment, and education needs, described elsewhere **(7)**. While the majority of patients served by the BMC IRHC are screened via THRIVE during primary care patient visits, little is known about self-reported unmet social needs in im/migrant populations, particularly in health care settings where routine screening is occurring. One exploratory study reporting on health and social needs of a refugee population in the Netherlands found that psychological distress was reported in approximately 67% of respondents whereas social needs such as childcare, money, education, food, and housing were reported in 10-17% of respondents **(8)**. However, these findings were limited to a convenience sample of 30 individuals.

The objectives of this study were to describe types and levels of unmet social needs within a refugee and asylum-seeking cohort and to estimate the relationship between level of unmet social needs and emergency department visit rates within this population.

Methods

Our study population included a cohort of im/migrant patients receiving care at BMC. Im/migrant patients were enrolled in our study if they received services from the IRHC, were age 18 or older, had at least one visit in 2015-2019 in either primary care, psychiatry, and emergency department clinics at BMC, and had at least one social needs screening during this study period. Our final study sample included 1405 individuals.

Data Collection

Our primary data source was the 2015-2019 BMC Clinical Data Warehouse (CDW), which consolidates patient data from the BMC Electronic Medical Record Systems. Im/migrant status was determined by proxy given that immigration status (*i.e. refugee, political asylee, undocumented*) is often intentionally not documented in the medical chart. Natal country of origin is similarly not reliably documented.

Measures

Our primary exposure variable was number of unmet social needs, as measured in the THRIVE. We categorized number of unmet social needs into 0, 1, 2-3, or 4 or more unmet social needs. For individuals who had multiple THRIVE screens, information was extracted from the first complete THRIVE in their record.

Our primary outcome measure was number of ED visits at BMC, which were identified using department and department specialty fields in the CDW.

Statistical Analysis

Our unit of analysis was the person-year, where each person-year was indexed to the date of the first completed THRIVE. We used chi-squared tests to compare sociodemographic characteristics by number of unmet social needs. We then estimated the association between level of unmet social needs and number of ED visits using a negative binomial regression model. Our model adjusted for age, sex, race/ethnicity, primary language, marital status, education level, and insurance type, and clustered errors at the person-level to account for repeated measures across years.

Statistical analyses were run using STATA 14. Statistical significance was set at $\alpha=0.05$. Our study was reviewed and approved by the Boston Medical Center Institutional Review Board.

Results

Our final analytic sample included 1405 unique individuals, representing 2806 person-years (*see Table 1*). The mean age of our cohort was 45.9 years (SD: 14.7 years), 69.5% were female, and the majority were non-Hispanic Black (60.4%). The majority of our sample had at least a high school degree or equivalent (59.0%), about half spoke English as their primary language (52.9%), and 61.4% were enrolled in Medicaid. Notably, anywhere between 33-40% of each THRIVE survey item had a missing response, with the exception of housing insecurity (10% missing), which is the first domain listed in the THRIVE survey.

One or more unmet social needs was reported by 36.8% of patients in our sample. Food insecurity was the most prevalent reported social need in this population with nearly 30% of the 942 individuals who responded to this question indicating food insecurity (*see Table 2*). This was followed by 29% reporting educational needs; 19%

reporting employment needs; 18% reporting barriers to paying for medications; 17% reporting lack of medical transportation; 15% reporting difficulty with medical transportation; and 10% reporting housing insecurity.

When examining the number of ED visits by unmet social need category, those who reported 0 unmet social needs had an average of 1.49 ED visits, followed by an average of 1.85 ED visits among those with 1 reported unmet need, an average of 1.79 ED visits among those with 2-3 unmet needs, and an average of 1.92 ED visits among those with 4 or more unmet social needs (*see Table 3*). In our adjusted model, having 4 or more unmet social needs was associated with an additional 249.47/visits/1000 im/migrant patients/year (95% CI: 15.95-482.99 p-value: 0.036), relative to those with no reported needs. Having 1 or 2-3 unmet social needs was associated with a non-statistically significant increase in the rate of ED visits (p>0.05).

Discussion

DISCUSSION

Among a large cohort of im/migrant patients, we found that 36.8% of patients reported at least one unmet social need, with food insecurity being the most prevalent unmet social need reported. Individuals reporting four or more unmet social needs had significantly more ED visits as compared to those who had no, 1, or 2-3 unmet social needs.

The additional ED visits may be in place of outpatient or primary care visits. Insufficient access to after-hours or non-weekday primary care may result in increased reliance on the ED, particularly for populations with competing social needs that may make it difficult to take time off from work or caregiving responsibilities. Future work should examine whether this additional ED burden is due to ambulatory sensitive conditions.

Our work adds to growing literature looking at ED utilization within im/migrant populations in the US. While a 2019 study concluded that refugees used ED services less often as compared to non-refugees **(9)**, we demonstrate that ED utilization varied within an im/migrant cohort depending upon level of unmet social need. This work echoes the literature in demonstrating the connection between poor SDOH and high utilization of health care, particularly high-cost health care such as ED visits.

Our findings have several implications. They emphasize the importance of not only addressing health disparities within im/migrant populations, but rigorously assessing and addressing unmet social needs as well. Accurately assessing and addressing unmet social needs may narrow existing health disparities **(10)**. Second, given that nearly 1 in 3 im/migrants reported food insecurity, developing programs and partnerships that link im/migrant populations with appropriate food and nutrition resources is critical.

A key limitation of our analysis was the lack of non-im/migrant controls. Our analysis was limited to a cohort of im/migrant individuals within a single urban health care system, so our results may not be generalizable to other im/migrant populations in the United States. Im/migrant status was determined by proxy given EHR chart documentation limitations, which may have actually underestimated the number of our study sample.

NEW CONTRIBUTION TO THE LITERATURE

Our work adds to the growing body of literature demonstrating connections between unmet social needs and high utilization of emergency medical services in im/migrant populations. Our findings emphasize the importance of

rigorously assessing and addressing social needs within im/migrant populations, which may narrow existing disparities in ED use.

Declarations

Ethical Approval: This study was approved by the Boston Medical Center Institutional Review Board.

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Conflict of Interest: The authors have no conflicts of interest relevant to this article to disclose.

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Tables

Table 1: Study Population Characteristics by Total Number of Unmet Social Needs (Total n=1405)

Total # of Unmet Social Needs:	*0*		*1*		*2 to 3*		*4 or more*		Totals		chi*2
Total n	888		185		187		145		**1405**		
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	
Sex											
Male	270	30.4	52	28.1	57	30.5	49	33.8	428	30.5	
Female	618	69.5	133	71.9	130	69.5	96	66.2	977	69.5	**0.477**
Age											
18-24	24	2.7	6	3.2	6	3.2	9	6.2	45	3.2	
25-34	194	21.8	39	21.1	50	26.7	33	22.8	316	22.5	
35-44	230	25.9	47	25.4	44	23.5	48	33.1	369	26.3	
45-54	176	19.8	36	19.5	31	16.6	25	17.2	268	19.1	
55-64	130	14.6	31	16.8	31	16.6	20	13.8	212	15.1	
65 and older	134	15.1	26	14.1	25	13.4	10	6.9	195	13.9	**0.004**
Race/Ethnicity											
Non-Hispanic White	54	6.1	7	3.8	6	3.2	4	2.8	71	5.1	
Non-Hispanic Black	537	60.4	110	59.5	117	62.6	101	69.7	865	61.6	
Hispanic	67	7.5	11	5.9	24	12.8	11	7.6	113	8.0	
Asian	28	3.1	8	4.3	1	0.5	1	0.7	38	2.7	
Multiracial	11	1.2	5	2.7	2	1.1	5	3.4	23	1.6	
All Other	191	21.5	44	23.8	37	19.8	23	15.9	295	21.0	**0.000**
Education*											
I did not attend school	87	12.3	20	13.1	19	13.4	8	8.2	134	12.1	
8th grade or less	93	13.1	16	10.5	13	9.2	7	7.1	129	11.7	
Some high school	120	16.9	27	17.6	28	19.7	14	14.3	189	17.1	
Graduated high school or GED	206	29.0	45	29.4	36	25.4	33	33.7	320	29.0	
Some college/vocational/technical program	73	10.3	16	10.5	13	9.2	13	13.3	115	10.4	
Graduated college/postgrad.	131	18.5	29	19.0	33	23.2	23	23.5	216	19.6	
Other/Declined/NA/Missing	174	19.6	31	16.8	41	21.9	46	31.7	303	21.6	**0.000**
Marital Status											
Single	471	53.0	90	48.6	94	50.3	77	53.1	732	52.1	

Married	323	36.3	68	36.8	64	34.2	45	31.0	500	35.6	
Divorced/Separated	43	4.8	13	7.0	12	6.4	10	6.9	78	5.6	
Widowed	32	3.6	10	5.4	10	5.3	4	2.8	56	4.0	
Other or Unknown	19	2.1	4	2.2	7	3.7	9	6.2	39	2.8	**0.003**
Language											
English	470	52.9	102	55.1	118	63.1	101	69.7	791	56.3	
Haitian Creole	115	12.9	20	10.8	22	11.8	13	9.0	170	12.1	
Spanish	57	6.4	11	5.9	18	9.6	14	9.7	100	7.1	
Other	246	27.7	52	28.1	29	15.5	17	11.7	344	24.5	**0.000**
Insurance											
Commercial	185	20.8	30	16.2	24	12.8	7	4.8	246	17.5	
Medicaid	546	61.4	125	67.6	129	69.0	113	77.9	913	65.0	
Medicare	58	6.5	15	8.1	9	4.8	9	6.2	91	6.5	
Uninsured/Self-pay/Safety-net	76	8.5	15	8.1	19	10.2	14	9.7	124	8.8	
Other (Travel Clinic, Research Grant, etc.)	25	2.8	7	3.8	6.5	3.5	3	2.1	42	3.0	**0.000**

**Education percentages reflect non-missing totals*

Table 2. Frequency of Reported Unmet Social Needs

	Yes, I have this need		No, I do not have this need		Total Reported	Missing/Not Answered	
	n	(%)	n	(%)		n	(%)
Any Identified Need	517	36.8	888	63.2	1405	---	---
Housing Insecurity	133	10.4	1137	89.5	1270	135	9.61
Food Insecurity	279	29.6	663	70.3	942	463	32.95
Unable to Pay for Medications	168	18.2	753	81.7	921	484	34.45
Medical Transportation	154	17.1	744	82.8	898	507	36.09
Utilities Payment	134	15.3	739	84.6	873	532	37.86
Childcare	68	7.5	832	92.4	900	505	35.94
Employment	167	19.3	697	80.6	864	541	38.51
Education	230	28.8	568	71.1	798	557	39.64

Table 3. Association between Number of Unmet Social Needs and # of ED Visits

	Unadjusted Mean # of ED Visits	Adjusted* regression results			
USN Categories	mean ED visits	Rate per 1000^	p-value	95% CI	
0 needs	1.49	*ref*	*ref*	*ref*	*ref*
1 need	1.85	100.92	0.228	-63.05	264.88
2-3 needs	1.79	146.03	0.095	-25.65	317.71
4+ needs	1.92	**249.47**	0.036	15.95	482.99

**Controlling for age, sex, race, language, marital status, education status, and insurance type*

^ All reported margins are relative to patients with no reported needs. All numbers are reported as number of ED visits, or additional number of ED visits, per patient per year.