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Research Article

Insurance Status and Healthcare Utilization among Refugees with Chronic Disease in an Urban Safety Net Care System

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Abstract

Refugees with chronic noncommunicable diseases face health care challenges before, during and after resettlement to the United States. This retrospective chart study seeks to characterize refugees with chronic disease and their utilization of healthcare services in a metropolitan area. There were 295 patients included in this study. The mean age was 41 years, and 52% were male. The 5 most commonly spoken (non-English) languages were Burmese, Arabic, Nepali, Dari, and Somali with 22 other languages noted. English was spoken in 12.2% of participants. Hypertension was prevalent in 17.3% of refugees, 14.9% had dyslipidaemia, and 11.9% had diabetes mellitus. Approximately 70% of participants initially had government-funded insurance; after the refugee medical assistance period, only 58.3% still had government-funded insurance ($p<0.001$). Paired analysis did not show a statistically significant difference in the total cholesterol level, glucose level, or blood pressure of patients between clinic visits. Most patients attended scheduled follow-up clinic visits (71%). The present study revealed a significant decline in insurance status after 12 months and that the chronic disease burden was comparable to that of other refugee populations in the U.S. Optimizing healthcare for refugees with chronic noncommunicable diseases should focus on improving health insurance coverage. Future work in this population should assess patient health literacy and clinical adherence to treatment.

Keywords: Refugee; Refugee health; Chronic diseases; Resettlement; Noncommunicable diseases

Introduction

Refugees are defined as people who flee their country and seek safety in another country from violence, conflict or feared persecution [1]. Refugees often encounter several challenges when accessing healthcare [2]. In the United States, several barriers limit access to healthcare for refugees, including transportation, financial constraints, language and communication, and interruption in health insurance, among others [3-6]. Upon arrival to the U.S., refugees are eligible for insurance coverage through Refugee Medical Assistance (RMA) only for their first 12 months, after which they must obtain their own health insurance [7,8].

While fleeing their country of origin and navigating novel, complex healthcare systems, refugees are at increased risk of having chronic Noncommunicable Diseases (NCDs) that remain undiagnosed or untreated [9-11]. Prior to their arrival, refugees are required to undergo pre-resettlement health screening to evaluate their medical condition before entering the U.S. [12] If chronic NCDs are not diagnosed prior to entering the country, they may be discovered at the additional screening that takes place locally in the state in which they resettle. The optimal provision of healthcare for newly arrived refugees should include integrating their language and culture with the use of trained, professional interpreters if necessary, fostering communication regarding their understanding of their health status through explanatory models. Healthcare providers should also maintain awareness of refugees' journeys and lived experiences and attempt to engage with refugee communities [13-16].

In the last decade, the state of Texas has resettled more refugees than any other state, resettling 10% of refugees in the United States annually [17-19]. Dallas County resettles the second-largest quantity of individuals of any county in Texas, after Harris County.19 Parkland Hospital, the county of hospital of Dallas, has established a refugee outreach program and a Refugee Outpatient Clinic (ROC). The ROC cares for patients referred by the local health department for outpatient management of at least one chronic NCD. Several studies have been conducted to characterize the health status and chronic NCD incidence of refugees at various locations around the country [20-27]. One study assessed the health of Bhutanese refugees in Texas to inform data-driven, local recommendations for improving healthcare access [28]. No study to date has assessed chronic NCDs amongst refugee populations in Texas. This study's objectives were to assess the rates of chronic NCDs and evaluate healthcare utilization among refugees within an urban safety-net hospital system in Texas.

Materials and Methods

This study was reviewed and approved by the UT Southwestern Medical Center Institutional Review Board. We performed a retrospective review of the electronic medical records of people at the ROC from 2015 to 2016. All patients at the ROC were referred by the health department for management of at least one chronic disease diagnosed prior to resettlement or during initial screening. Participants were included if they were at least 18 years old and presented to the ROC at least once between January 1, 2015, and December 31, 2016. Information in the electronic medical records from the local health department visit, the initial ROC visit, and any subsequent clinic or hospital visits was reviewed. Data collected included sociodemographic characteristics (age, sex, marital status, country of origin, race, language spoken), past medical history, insurance status, serum glucose level, blood pressure, serum cholesterol level (total cholesterol and high-density lipoprotein), number of Emergency Department (ED) visits, and number of clinic appointments attended.

Hypertension was defined as a systolic blood pressure greater than 130 mm Hg and/or diastolic blood pressure greater than 80 mm Hg [29]. A normal serum glucose concentration was defined as less than 140 mg/dL [30]. A normal total cholesterol level was defined as a level under 200 mg/dL [31]. We defined an abnormal High-Density Lipoprotein (HDL) level to be under 40 mg/dL due to the increased risk for cardiovascular disease [32].

The frequencies and proportions were determined for demographic information, medical history, and healthcare facility utilization. T-tests were performed to compare continuous variables between healthcare visits. Chi-squared tests were performed to compare unpaired categorical variables between healthcare visits. Paired analyses were completed for patients for variables available at both visits. A McNemar test was performed to assess the difference in insurance coverage between ROC visits. Analyses were performed with SAS 9.4 (SAS Institute, Cary, NC, USA).

Results

Demographic Information

There were 295 participants included in this study. Demographic information is summarized in Table 1. The average age was 41 years (range: 20–67), 51.9% (n=153) were male, and 48.1% (n=142) were female. In our study population, 71.9% were married (n=212), 13.2% were single (n=39), 2.0% were divorced (n=6), and 3.4% were widowed (n=10). Marital status was not reported in 9.5% of participants (n=28). Participants were from 19 different countries, with the majority (55.6%) originating from countries in Asia (n=164), 25.8% from countries in the Middle East (n=76),

15.6% from countries in Africa (n=46), 1.0% from countries in the Caribbean (n=3), and 0.7% from countries in Eastern Europe (n=2). The most common languages spoken were Burmese (n=58, 19.7%), Arabic (n=49, 16.6%), Nepali (n=44, 14.9%), English (n=36, 12.2%), Dari (n=24, 8.1%), and Somali (n=16, 5.4%).

Age	
Mean	41
Max	67
Minimum	20
Sex, n (%)	
Male	153 (51.9)
Female	142 (48.1)
Marital Status, n (%)	
Single	39 (13.2)
Married	212 (71.9)
Divorced	6 (2.0)
Widowed	10 (3.4)
Unknown	28 (9.5)
Employment Status, n (%)	
Employed	60 (20.3)
Unemployed	102 (34.6)
Retired	4 (1.4)
Unknown	129 (43.7)
Medical History, n (%)	
Hypertension	51 (17.3)
Diabetes	35 (11.9)
Hyperlipidemia	44 (14.9)
Cardiovascular disease	15 (5.1)
Region of Origin, n (%)	
Asia	164 (55.6)
Middle East	76 (25.8)
Africa	46 (15.6)
Caribbean	3 (1.0)
Eastern Europe	2 (0.7)
Unknown	4 (1.4)
Language, n (%)	
Burmese	58 (19.7)
Arabic	49 (16.6)
Nepali	44 (14.9)
English	36 (12.2)
Dari	24 (8.1)
Somali	16 (5.4)
Chin	11 (3.7)
Kinyarwanda	10 (3.4)
Swahili	9 (3.1)
Malay	6 (2.0)
Karen	4 (1.4)
Tigrinya	4 (1.4)
Spanish	3 (1.0)
Amharic	2 (0.7)
Kurdish	2 (0.7)
Urdu	2 (0.7)
Dari (sign language)	1 (0.3)
English (sign language)	1 (0.3)
French	1 (0.3)
Kirundi	1 (0.3)
Pashto	1 (0.3)
Rohingya	1 (0.3)
Romanian	1 (0.3)
Russian	1 (0.3)
Sango	1 (0.3)
Sign Language	1 (0.3)
Tamil	1 (0.3)
Other	4 (1.4)
Initial Insurance, n (%)	
Yes	243 (82.4)
No	23 (7.8)
Unknown	29 (9.8)
Subsequent Insurance, n (%)	
Yes	198 (67.1)
No	43 (14.6)
Unknown	54 (18.3)

Table 1: Demographic Information of Refugees with Chronic NCDs.

Insurance

At the initial ROC visit during the RMA period, all 295 refugees had government-funded insurance. At a subsequent ROC visit that occurred after the RMA period, 58.3% had government-funded insurance (n=172), 14.6% were uninsured (n=43), 3.1% obtained private insurance (n=9), and insurance status was not unavailable in 18.3% of participants (n=54, $p<0.001$).

Health Status

A review of past medical history revealed that 17.3% of refugees (n=51) had a diagnostic history of hypertension, 14.9% (n=44) had dyslipidaemia, 11.9% (n=35) had diabetes mellitus, and 5.1% had cardiovascular disease (n=15) (Table 2).

	N	Health Department	Clinic visit	Health Department minus Clinic difference (95% CI)	p-value
Hypertension[a]					
Hypertension, n (%)	185	85 (46.0)	87 (47.0)		0.81
Systolic blood pressure, mm Hg	186	123 ± 18 121 (86, 184)	124 ± 17 123 (87, 178)	-1.1 (-3.2 to 1.0)	0.30
Diastolic blood pressure, mm Hg	186	78 ± 12 78 (42, 117)	79 ± 10 79 (53, 106)	1.7 (-1.0 to 4.4)	0.22
Glycemic control[a]					
Hyperglycemia, n (%)	65	19 (29.2)	17 (26.2)		0.53
Plasma glucose, mg/dL	64	136 ± 74 113 (33, 410)	126 ± 67 108 (41, 488)	10.2 (-1.1 to 21.2)	0.08
Cholesterol[b]					
Low HDL, n (%)	35	20 (57.1)	16 (45.7)		0.10
HDL, mg/dL	34	41 ± 14 39 (18, 73)	43 ± 14 40 (18, 76)	-2.2 (-4.9 to 0.5)	0.11
High total cholesterol, n (%)	34	17 (50.0)	14 (41.2)		0.37
Total cholesterol, mg/dL	34	196 ± 38 196 (110, 273)	195 ± 44 194 (120, 308)	0.9 (-11.9 to 13.7)	0.89

Continuous variables are reported as mean ± standard deviation and median (minimum, maximum).

CI: Confidence Interval

[a]Clinic visit is the initial clinic visit; [b]Clinic visit is the subsequent visit

Table 2: Health Status Measurements of Refugees at Health Department visit and Clinic visit.

Blood Pressure

Blood pressure measurements were available for 62.7% of participants (n=185). Of these 185 participants, 85 (45.9%) had an elevated systolic and/or diastolic blood pressure consistent with hypertension at the initial health department visit, and a similar rate was observed at the initial ROC visit (n=87, 47.0%). Blood pressure data were available at two ROC visits for 119 participants. At the second ROC visit, there were significantly fewer participants with hypertension (n=45) than the initial ROC visit (n=59, p=0.002). There was no statistically significant difference in the mean systolic blood pressure between the initial and subsequent ROC visits, however we observed a significant decrease in diastolic blood pressure (p=0.004) (Table 3).

	N	Initial Clinic visit	Subsequent Clinic visit	Initial - Subsequent Clinic difference (95% CI)	p-value
Hypertension, n (%)	119	59 (49.6)	45 (37.8)		0.02
Systolic blood pressure, mm Hg	121	125 ± 19 122 (87, 178)	123 ± 15 123 (92, 172)	1.7 (-1.0 to 4.4)	0.22
Diastolic blood pressure, mm Hg	121	80 ± 10 79 (59, 102)	77 ± 11 77 (52, 116)	2.7 (0.9 to 4.6)	0.004
Continuous variables are reported as mean ± standard deviation and median (minimum, maximum). CI: Confidence Interval					

Table 3: Paired results for patients with both Initial clinical visit and subsequent clinic visit.

Glucose Monitoring

Elevated blood glucose in at least one visit was found in 65 participants (25.1%). The rate of hyperglycaemia was similar at both visits (n=20, 6.8% versus n=24, 8.1%). Paired analysis revealed no significant difference in the rate of hyperglycaemia between refugees at the health department visit and those at the initial ROC visit.

Cholesterol Monitoring

The mean total cholesterol for refugees was 187 mg/dL at the health department visit and 192 mg/dL at the initial ROC visit. A small proportion of people (15.3%, n=45) were classified as having high cholesterol at the Health Department visit and 10.5% (n=31) had high cholesterol at the initial ROC visit. Paired analysis revealed no statistically significant difference in the total cholesterol or HDL levels of refugees during the health department and initial ROC visits.

Utilization of Healthcare Facilities

On average, participants in this study attended 70% of their scheduled clinic appointments. Most did not visit the county emergency department (85.1%, n=251). Approximately one third of patients visited an emergency department other than the county emergency department, with one patient visiting the emergency department 14 times (Table 4).

Clinic Appointments Attended	%
Mean	70
Median	71
Max	100
Minimum	0
County Hospital ED Visits	
Mean	0.25
Median	0
Max	6
Minimum	0
Non-County Hospital ED Visits	
Mean	0.74
Median	0
Max	14
Minimum	0

Frequency of County Hospital ED visits		Frequency of Non-County Hospital ED visits	
0	251 (85.1)	0	208 (70.5)
1	29 (9.8)	1	43 (14.6)
2	8 (2.7)	2	12 (4.1)
3	2 (0.7)	3	10 (3.4)
4	3 (1.0)	4	11 (3.7)
5	1 (0.3)	5	4 (1.4)
6	1 (0.3)	6	4 (1.4)
7	0 (0.0)	7	0 (0.0)
8	0 (0.0)	8	0 (0.0)
9	0 (0.0)	9	1 (0.3)
10	0 (0.0)	10	1 (0.3)
		11	0 (0.0)
		12	0 (0.0)
		13	0 (0.0)
		14	1 (0.3)

Table 4: Healthcare Facility Utilization of Refugees with Chronic NCDs.

Discussion

Effective primary care for refugee patients has remained challenging due to numerous patient-level and system-based factors. In the present study, we provide a retrospective review of the insurance status, chronic disease prevalence, and healthcare service utilization of refugee patients seen at an urban county hospital's refugee outreach clinic. The chronic NCD profile is comparable to that of a similar retrospective study that revealed hypertension to be the most common NCD in U.S. refugee populations and found low rates of diabetes and heart disease (5% and 3%, respectively) [33]. Although cardiovascular disease is the leading cause of death in Dallas County, we observed a low prevalence of cardiovascular disease in this study, at 5% [34]. There is a possibility of undiagnosed cardiovascular disease in this refugee population. Nearly half of all adults in the U.S. have hypertension [34]. Although only 17% of our population was previously diagnosed with hypertension, which is lower than the general U.S. population, nearly 30% of our study population had high blood pressure during the health department visit. At the initial ROC visit, 42% had high blood pressure; this figure decreased significantly to 15.6% at the second clinic visit. The decrease in blood pressure may be explained by improved access to medications or for hypertension between the first and second visits. Similar rates of hyperglycaemia and dyslipidaemia were observed throughout all health visits.

All refugees qualify for government-funded insurance for the first 12 months. More than 70% of participants were insured through RMA; however, 8% of participants were uninsured at the time of their first clinic visit. This may be explained by a lack of access to proper enrolment or participants in our study who did not qualify for RMA for various reasons, including asylum-seeker status, which is distinct from refugee status. Additionally, the 15% increase in uninsured refugees after the RMA period points towards the importance of increasing opportunities for insurance beyond the RMA period. If refugees are unable to secure employment with health insurance benefits or obtain private insurance, it is challenging to gain access to outpatient care for chronic NCDs. The Affordable Care Act prevents anyone from being charged more for insurance because of pre-existing conditions as of 2014 [35]. The ACA has resulted in a net increase in the number of insured people from vulnerable populations, including those of low-income backgrounds, women, and racial/ethnic minorities, however the ACA's impact on refugees remains unknown [36,37].

Interestingly, the percentage of people living without health insurance in Dallas County ages 0-64 years in the year 2013 was 30%, which slightly greater than 25% in the state of Texas. 34 These figures are greater than the percentage of uninsured refugees in this study who were followed after the RMA period (15%).

Although we observe a lower proportion of refugees who are uninsured compared to the population of Dallas County, refugees confront unique challenges compared to the general population, and a lack of insurance combined with structural and logistical obstacles warrant a need for additional safety net options for insurance coverage in this population [33,38]. In addition, this county hospital has its own quasi-insurance system for uninsured patients residing in its county, which may facilitate obtaining health care coverage compared to other areas in the U.S. where refugees may reside.

Longstanding chronic conditions are among the most common reasons refugees seek primary care [39]. However, ED utilization for nonurgent medical needs was low in our study, with most of our patients seeking their care through outpatient clinic visits. In the general population, ED usage for chronic NCDs and other nonurgent medical needs is greater among those who are uninsured; however, compared to those on Medicaid, uninsured patients utilize the ED less for any reason [40,41]. Additionally, uninsured patients are significantly less likely to utilize other types of care, including outpatient visits and hospitalizations [41]. This difference in ED utilization between refugees and other people who are on federal insurance or uninsured may be due to logistical barriers such as limited English proficiency and knowledge of the healthcare system [42].

The results of our study indicate that refugees experience a lower burden of chronic NCDs and decreased health insurance access over time compared to the rest of Dallas County. Refugees differ significantly from the rest of the population in socioeconomic indices of wellbeing such as employment, which likely contribute to the long-term increased uninsured rates and chronic NCD burden observed in other studies in refugee populations [42]. We suspect that if this cohort of participants is followed for a longer duration, there may be a greater chronic disease burden due to diminishing access to primary care. Improving access to health care for refugees will likely rely on addressing modifiable risk factors such as employment, which is related to health insurance access, lifestyle-related factors, and cultural and language barriers. Addressing social issues such as limited English proficiency, vocational opportunities, and the formation of social ties may be among the most important factors for effective chronic NCD management.

Additionally, improving access to care for our refugee population should focus on the medical encounter itself. In addition to improving the triage and documentation of chronic disease, another potential area of intervention can be tailoring healthcare access to those with greater disease burdens. For example, in a cohort study of uninsured patients with complex medical and behavioural health needs, an interdisciplinary team-based model of regularly scheduled group medical appointments was shown to reduce ED visits and overall healthcare costs [23].

Further studies on improving health care access for refugees with chronic diseases may also explore patient-provider interactions, such as assessing patients' understanding of their disease and determining the circumstances under which refugees do and do not seek healthcare. Refugees tend to face worse health outcomes and chronic NCD burdens than nonrefugee immigrants and may be inadequately screened for chronic conditions upon arrival in the U.S. [43,44]. Additionally, similar to many other U.S. immigrants, refugee populations appear to sustain a greater burden of metabolic comorbidities the longer they are in the U.S., becoming victim to already-existing systemic inequities in health. Improving chronic NCD management for refugee populations should entail targeting numerous structural determinants of health, including financial stability, cultural and linguistic competency, and long-term access to healthcare services.

Limitations

Limitations of this study include its retrospective design. In this study, only refugees with pre-existing chronic disease were referred to the refugee outpatient clinic. Thus, these results are not generalizable to all refugees in this area. The results from all available data and subsets of patients with missing data through paired analysis, and there were participants for whom limited to no information was available for data collection. The electronic medical records also included several hospital systems in the area that were not accessible for every participant, so there is a possibility that there were missing data from other healthcare facility visits. In addition, this county hospital has its own assistance program that provides state-funded, quasi-insurance for low-income patients, which limits the validity of the rate of refugees who have government funded insurance by default, since they may have enrolled in the county hospital insurance program. Lastly, this study includes only documented refugees, which often excludes people who are seeking asylum or without formal documentation of immigration status.

Conclusions

This study advances the literature by depicting the chronic NCD profile of refugees in Texas, which is comparable to that of other refugee populations in the U.S. Overall, ED utilization was low, and patients received their care primarily from outpatient appointments. Improving chronic NCD management for refugees should focus on facilitating greater access to health insurance. Future studies in this population should assess the impact of refugee outpatient clinic programs on the health of refugees with chronic diseases over time.

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Author Contributions

Conceptualization: [Mary P Chang, Jordan Hughes, Lance Rasbridge]; Methodology: [Mary P Chang, Lance Rasbridge, Joan Reisch]; Formal analysis and investigation: [Zoe Tao, Maya Rao, Taylore King, Mary P Chang, Lance Rasbridge, Joan Reisch, Jordan Hughes]; Writing - original draft preparation: [Zoe Tao, Maya Rao, Taylore King, Mary P Chang, Lance Rasbridge, Joan Reisch, Jordan Hughes]; Writing - review and editing: [Zoe Tao, Taylore King, Mary P Chang, Lance Rasbridge, Joan Reisch, Jordan Hughes, Giselle Uwera]; Funding acquisition: none; Resources: none; Supervision: [Mary P Chang, Lance Rasbridge]

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