



Characteristics of Patients with Dermatologic Conditions in a Student-Run Free Clinic: A Retrospective Study

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Abstract

Background: The Equal Access Clinic is a free, student-run clinic affiliated with the University of Florida in Gainesville, Florida. Four days a week, a general clinic is held at various sites, providing free healthcare to patients in North Florida. Once a month, a specialty clinic for dermatology is held based on a referral system from general clinics. We aimed to characterize patients' demographics and diagnoses who received dermatologic care at a free clinic in North Florida.

Methods: A retrospective chart review was completed for patients seen at Equal Access Clinic for a dermatology diagnosis from 2013 to 2020 (n=864).

Results: One third of patients were seen for a chronic dermatology condition. Patients who were white and higher earners were more likely to travel further distances for care.

Conclusions: These findings highlight the importance of improving access of dermatology care to underserved areas and may be accomplished in part by increasing access to transportation to clinics. Limitations include the retrospective nature of our chart review and the reliance on zip code to estimate median household income. Additionally, the patients in this study were seen by primary care physicians, rather than dermatologists.

Introduction

More than 15 million Americans receive healthcare from free or low-cost medical clinics.¹ Free or low-cost healthcare clinics across the country serve a mission to provide care to all patients, with an emphasis on the uninsured or underinsured. Patients attending free medical clinics are more likely to be racial and ethnic minorities, homeless, non-citizens, and non-native English speakers.¹

Low socioeconomic status (SES) has been shown to be associated with poor patient outcomes such as increased severity of chronic dermatology conditions, increased risk of non-

melanoma skin cancers, and worse survival in those diagnosed with melanoma.²⁻⁴

The Equal Access Clinic (EAC) is a free student-run clinic in Gainesville, Florida aimed at providing quality healthcare to the North Florida community. After almost 30 years of operating as a primary care setting, the need was found for specialty clinics. Dermatology Night, founded in 2019, is a specialty clinic held once a month with the assistance of University of Florida's dermatology faculty. Prior to this, patients received care for dermatologic conditions by EAC primary care. Patients are referred from various outlets, which include primary care practices in the community, skin screening events, and EAC

primary care clinics. The majority of patient referrals come from the EAC primary care clinics. The Gainesville-based EAC dermatology clinic is the only of its kind serving North Florida, and to date, there are limited studies describing the dermatological needs of low-income patients especially in Florida.⁵⁻⁹ To address this, this study examined the demographics of the patient population and the type of dermatologic conditions seen in the EAC patient population. These findings may inform free clinic leaders on the conditions for which patients seek treatment, which may optimize dermatologic care delivery.

Methods

Retrospective Case Analysis

This study was approved by the University of Florida, Institutional Review Board. Patients aged 18 or older visiting Equal Access Clinic for dermatology care from January 2012 to February 2020 were included. Dermatology diagnoses made prior to 2019 were done so by a primary care physician volunteering at the clinic. After 2019, diagnoses were also made by board

certified dermatologists at the dermatology specialty clinic. Demographic parameters extracted were sex, age, race, primary language spoken, insurance status, zip code, and distance traveled to the clinic. Multiple encounters by the same patient were counted as a unique entry only if the diagnosis was unique. All visits studied were conducted in-person.

Data collection was completed using EAC’s in-house electronic health record (Practice Fusion, 2023, Practice Fusion Inc., San Fransisco, CA) to collect information on patient visits. Using patient addresses, driving distance traveled from home to clinic site was recorded in miles. Using US census data, median income was recorded for each zip code. Due to the large number of unique diagnoses that were recorded, they were grouped into five categories: benign neoplasm, chronic dermatologic disease, infection, malignancy, and other. Chronic dermatologic disease was defined as having a chronic disease course and routine follow-up. Patient age and median household income were also categorized for some subgroup analyses.

Table 1. Demographic information for the studied patient population stratified by age, gender, race, and language

Characteristic	Patients (n)	Average income (\$)	t	F / F crit	P value	Average distance traveled (miles)	t	F / F crit	P value
Age (years)									
0-29	240	33,312.26				6.816			
30-49	311	33,352.13	-	15.89/3.00	<.001	9.164	-	1.53/3.00	0.216
50+	313	37,668.40				8.841			
Gender									
Male	398	34,089.64				8.609			
Female	465	35,584.66	-1.996	-	0.0463	8.225	0.330	-	0.741
Race / Ethnicity									
White	337	37,831.39				10.624			
Black / African American	240	33,008.26	-	13.39/2.62	<.001	5.115	-	5.99/2.62	<.001
Hispanic/Latino	209	32,811.75				9.167			
Other	78	34,130.49				5.902			
Language									
English	651	35,428.02				8.648			
Non-English	213	33,305.27	2.456	-	0.0145	7.620	1.103	-	0.270

Table 2. Three income brackets compared to age and average distance traveled to clinic

Characteristic	Income: < \$25,000 (n=101)	Income: <25,000 - \$34,999 (n=440)	Income: > \$35,000 (n=323)	X ²	F / F crit	P value
Average Age (years)	34.36	42.05	45.67	-	23.019 / 3.006	<.001
Average Distance Traveled (miles)	4.38	6.99	11.56	-	10.630 / 3.006	<.001
Gender n (%)						
Male	54 (53.5)	202 (45.9)	142 (44.0)	2.805	-	0.246
Female	47 (46.5)	238 (54.1)	180 (55.7)			
Race / Ethnicity						
Hispanic/Latino	44 (43.6)	104 (23.6)	61 (18.9)	-	50.904	<.001
Asian	3 (3.0)	21 (4.8)	15 (4.6)			
Other	4 (4.0)	23 (5.2)	12 (3.7)			
Language						
English	62 (61.4)	334 (75.9)	255 (78.9)	12.927	-	0.002
Non-English	39 (38.6)	106 (24.1)	68 (21.1)			
Diagnosis Category						
Benign neoplasm	11 (10.9)	29 (6.6)	37 (11.5)	8.820	-	0.358
Chronic dermatologic disease	34 (33.7)	163 (37.0)	111 (34.4)			
Infectious	26 (25.7)	118 (26.8)	83 (25.7)			
Malignancy	1 (1.0)	3 (0.7)	6 (1.9)			
Unspecified / Other	31 (30.7)	138 (31.4)	92 (28.5)			

Statistical analysis was performed (Excel, Microsoft 365, Microsoft Corporation, Redmond, WA) The cumulative data were stratified by quantitative variables were evaluated using unpaired t-tests and single factor analysis of variance (ANOVA) tests. We used complete case analysis to address missing data. Significance was declared for $p < 0.05$.

Results

A total of 864 unique patient encounters were included in the study. The average age of patients was 42.5 years, with a median of 42 and range from 18 to 86 years. A slight predominance of women (53.8%) were treated. The majority of patients spoke English at 75.4% with Spanish-speaking patients comprising 6.7%, and 17.1% denoted as "other" for primary language. Thirty-nine percent of patients were White, 27.8% were

variables for subgroup analysis. Chi-square tests of independence were used to evaluate for associations between categorical variables.

Associations between categorical and Black/African American, and 24.2% were Hispanic/Latino.

The average distance traveled was 8.4 miles with a median of 4.9; 21.8% of patients traveled over 8 miles with a maximum of 287 miles. There was a significant difference in distance traveled between races with White and Hispanic/Latino races traveling the furthest and Black/African American individuals traveling the shortest (Table 1). Those with an income over \$35,000 traveled the furthest, while those with an income less than \$25,000 traveled the shortest distance (Table 2).

Patients reporting no insurance comprised 87.4% of all patients. Patients with private insurance and Medicaid made up 4.9% and 3.2% of all patients, respectively. The majority of

Table 3. Distribution of diagnosis categories amongst races

Characteristic	White (n=337)	Black/African American (n=240)	Hispanic/Latino (n=209)	Other (n=78)	X ²	F / F crit	P value
Age (years)							
Average	44.34	41.71	39.48	45.10			
Median	46	42	37	43.5	-	5.495 / 2.615	0.001
Gender n(%)							
Male	161 (47.9)	112 (46.7)	89 (42.6)	36 (46.2)	1.517	-	0.678
Female	175 (52.1)	128 (53.3)	120 (57.4)	42 (53.8)			
Insurance							
Private	22 (6.5)	14 (5.8)	5 (2.4)	5 (6.4)			
Medicaid	12 (3.9)	9 (3.8)	6 (2.9)	1 (1.3)	10.617	-	0.303
Medicare	8 (2.4)	7 (2.9)	1 (0.5)	1 (1.3)			
None	295 (87.5)	210 (87.5)	197 (94.3)	71 (91.0)			
Diagnosis Category							
Benign neoplasm	37 (10.4)	25 (9.8)	19 (8.4)	5 (5.7)			
Chronic dermatologic disease	105 (28.8)	89 (35.0)	80 (35.4)	34 (38.6)	24.206	-	0.019
Infectious	86 (23.6)	75 (29.5)	75 (33.2)	23 (26.1)			
Malignancy	8 (2.2)	0 (0)	1 (0.4)	1 (1.1)			
Unspecified / Other	120 (32.9)	65 (25.6)	51 (22.6)	25 (28.4)			

patients (50.9%) fell into an income bracket of \$25,000-\$34,999 (Table 2). The median household incomes based on zip code ranged from \$18,895 to \$66,900. Non-English speakers had a percentage of individuals making less than \$25,000 annually (Table 2). Patients over the age of 50 reflected the group with the highest income, at an average of \$37,668.40 (Table 1).

Across the sample, a total of 990 diagnoses were recorded, 109 of which were unique. Unspecified rash or disorder of skin was the most common International Classification of Disease 10 (ICD-10) diagnosis making up just over 15% of all dermatology related diagnoses. Infectious etiologies made up almost 30% of all diagnoses and chronic dermatologic conditions was the largest category, comprising 32.5% of all diagnoses. Just under 9% of diagnoses were categorized as benign neoplasms, and a little more than 1% were categorized as malignant neoplasms. There was a significant difference in distribution of diagnosis categories amongst races (Table 3). Non-white patients were more

significantly lower income than English speakers (Table 1). Most individuals who had an income of \$35,000 or greater were White (51.1%), while Hispanic/Latino individuals made up the largest likely to be treated for infections or chronic dermatologic diseases. Malignant and benign neoplasms were more prevalent amongst White individuals.

Discussion

According to the National Health Statistics Report, the national average uninsured rate was 13.9% in 2020 for adults aged 18-64.¹⁰ The uninsured rate in Florida is significantly higher than the national average, at 19.5%. This higher percentage of uninsured patients is likely due in part to the lack of Medicaid expansion status in Florida, which doubles uninsured rates for adults ages 18-64.¹⁰ According to the U.S. Census Bureau's Small Area Income and Poverty Estimates for 2020, Alachua County has a poverty rate of 17.2%, higher than the State of Florida's

average of 12.4%.¹¹ For these reasons, Florida has a great need for clinics that provides free, high-quality care regardless of insurance status. From 2012 to 2020, over 800 patients were treated at EAC for dermatologic conditions; 87.4% of these patients were uninsured.

We found a significant discrepancy in income, with those aged over 50 years earning significantly more than younger patients. Nationally, median income increases with patient age.¹² Higher earning individuals were also more likely to be White and travel further distances to be seen in clinic (Table 2). The increased distance traveled for higher earning individuals likely reflects the location of clinic sites in lower income areas of the city. Therefore, patients in the lowest income bracket inherently have less distance to travel. This association is relevant given that clinics of this type serve patients in the lowest SES bracket who may have difficulty in securing transportation. Complimentary transportation for patients may increase access to care for lower earning patients.

Infections accounted for nearly 30% of all conditions treated in our study. The most common infections included abscess (3.23%), tinea pedis (3.03%), onychomycosis (3.23%), cellulitis (3.84%), superficial mycoses (2.42%), and scabies (1.92%). Hai et al found that nearly 20% of the patients at their free dermatology clinic were treated for infections.⁶ Low SES is known to be associated with an increased prevalence of infections, likely secondary to poor living conditions and lack of access to regular bathing.¹³ Chronic dermatologic diseases made up almost one third of conditions treated in our study, including atopic dermatitis (6.46%), psoriasis (4.14%), pruritis (3.74%), and acne vulgaris (3.43%). The high prevalence of chronic dermatologic conditions treated highlights the importance for access to high-quality dermatologic care for uninsured or underinsured patients. Dermatologists are almost twice as likely to make an accurate diagnosis as non-dermatologists.¹⁴ Notably, just 1% of patients in our sample were diagnosed with a cutaneous malignancy. The relatively young average age of the patients in this study (42.5 years) and potential underdiagnosis by primary care may explain this low prevalence.

The existing literature demonstrates that underinsured patients have poorer outcomes in dermatology due in part to access barriers.¹⁵ To improve access, dermatologists should be familiar with fee-assistance programs within their institution, government-issued emergency insurance coverage, and nearby free dermatology clinics. While free health care clinics are becoming more common across the country, very few offer care provided by board-certified dermatologists.¹⁶ Through free health care clinics, dermatologists can improve patient outcomes for those not afforded care in our current system.

The limitations of this study include its retrospective design. We did not have access to household income, so we proxied income through zip code median income. The majority of patients in this study were seen by a primary care provider which affects diagnostic accuracy.

Conclusion

This study characterizes patients seeking dermatologic care at a free clinic in North Florida and highlights opportunities to improve outcomes for underinsured or uninsured patients. Ultimately, dermatologic needs vary by community. Our retrospective study adds to the relatively small body of research on free dermatologic care. Other free medical clinics may find similar studies helpful to their practices.

Disclosures

The authors have no conflicts of interest to disclose.

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