

ORIGINAL ARTICLE

Racial disparities in the impact of chronic pruritus: A cross-sectional study on quality of life and resource utilization in United States Veterans

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Background: Chronic pruritus has a lifetime prevalence of up to 26% in the worldwide population. Research has shown that the incidence and quality of life (QoL) impact of chronic pruritus varies by race.

Objective: We sought to explore the effects of race on specific pruritus-related QoL factors and resource utilization.

Methods: We performed a cross-sectional, national telephone survey of 6000 US Veterans randomly sampled from the Veterans Hospital Patient Database. We administered surveys to assess QoL impact and resource utilization of chronic pruritus.

Results: Nonwhites overall reported higher levels of burning and scarring with their pruritus. African Americans had a significantly greater emotional impact and use of special soaps, lotions, and clothes. African Americans were also more likely to visit their primary care provider for pruritus ($P = .03$), yet had similar numbers of specialty care visits.

Limitations: Because our sample was drawn from a veteran population, generalizability may be limited.

Conclusion: The data indicate a racial disparity in specific QoL impact and resource utilization from pruritus. These findings merit further exploration into explanations, such as access, communication, trust of the medical system, and biologic differences. (J Am Acad Dermatol <http://dx.doi.org/10.1016/j.jaad.2017.01.016>.)

Key words: African American; chronic pruritus; pruritus; quality of life; racial disparity; resource utilization; Veterans.

Pruritus, more colloquially known as itch, is the unpleasant, cutaneous sensation that causes the sufferer to scratch the area. Chronic pruritus, defined by the International Forum for the Study of Itch as pruritus lasting ≥ 6 weeks,¹ has been recognized as a prevalent

condition in Europe and the United States (US). European lifetime prevalence ranges from 22% to 25.5%,²⁻⁴ and US point prevalence is $\leq 38\%$.^{5,6} Chronic pruritus has multiple cutaneous and noncutaneous etiologies, making it complex to both study and treat.^{7,8}

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Supported in part by Veterans Administration Rehab Research and Development Merit Review (F45291).

Conflicts of interest: None declared.

Results from this study were previously presented at the 2015 International Forum for the Study of Itch's 8th World Congress

of Itch, Nara, Japan, September 27-29. Dr Shaw's work for this article was conducted at Emory University.

Accepted for publication January 9, 2017.

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Published online March 29, 2017.
0190-9622

Published by Elsevier on behalf of the American Academy of Dermatology, Inc.

<http://dx.doi.org/10.1016/j.jaad.2017.01.016>

The impact of this symptom on quality of life (QoL) can be substantial, with up to 73.6% of subjects reporting a negative effect on daily life due to itch.⁹⁻¹³ Yosipovitch et al¹³ found that chronic pruritus led to difficulty concentrating and agitation in >50% of patients, and was also linked to depression and decreased sexual function. Notably, chronic pruritus has been found to have a greater QoL impact than other chronic conditions, such as asthma, diabetes, or angina pectoris.¹⁴ The extensive negative effects have even been equated to that of chronic pain.¹⁵

With its considerable prevalence and QoL impact, chronic pruritus leads to a substantial use of medical resources. A recent study found that chronic pruritus is reported in 1% of all outpatient visits in the United States,⁶ accounting for a total of 7 million visits per year. Chronic pruritus is also likely to incur indirect costs; Torrelo et al¹⁰ found that patients with atopic dermatitis, a common etiology of chronic pruritus, lost an average of 8.3 work days per year because of their condition.

While studies have shown that chronic pruritus is a widespread dermatologic symptom, existing prevalence research does not reflect demographics representative of the US population. Studies with culturally diverse samples have noted that pruritus symptoms appear to be more common in patients of Asian or Middle Eastern descent.^{3,16} In an analysis of outpatient visits in the United States between 1993 and 2009, 7.8% of patient visits to dermatologists by whites included a diagnosis of unspecified dermatitis or eczema compared to 14.0% and 17.9% of visits by African American (AA) patients or patients of Asian or Pacific Islander descent, respectively.¹⁷ This disparity is significant because pruritus is a common symptom that leads to treatment-seeking for eczema. Shive et al⁶ found that patients seen by doctors for itch were more commonly AA or Asian. These populations were more likely than whites to seek medical care for atopic dermatitis-related pruritus, despite an overall decreased number of skin-related medical visits per capita.¹⁸

Although racial disparities in health care access and utilization are a significant problem in the United States,¹⁹ little is known about health disparities in dermatology. The Institute of Medicine defines a

disparity as a difference in treatment provided to members of different racial (or ethnic) groups that is not justified by patients' underlying health conditions or treatment preferences.²⁰ Our earlier study⁵ found that nonwhites had greater QoL impact from pruritus even after adjusting for self-reported itch severity. The present study aims to address the

gap in the literature on dermatology racial disparities. Specifically, we seek to better understand the QoL impact from chronic pruritus and to explore any effects of race on pruritus-associated resource utilization in a nationally representative sample. We hypothesize that there are specific QoL issues experienced more strongly and that resources are used differently by different racial groups.

CAPSULE SUMMARY

- Chronic pruritus has a greater impact on nonwhite patients overall and in specific quality of life aspects.
- African Americans use more primary care visits and help for daily tasks because of the impact of chronic pruritus.
- Clinicians should beware of racial disparities in the emotional impact, certain associated symptoms, and functional limitations from chronic pruritus.

METHODS

Study design

This study analyzed data from a cross-sectional survey of chronic pruritus patients that has been previously described in detail.⁵ The survey consisted of a random sample of 6000 US Veterans from the Veterans Hospital Patient Database, stratified by the US Census Bureau's 6 geographic areas to guarantee a diverse geographic representation. Of the 1075 veterans who agreed to participate in the study, 405 fulfilled criteria for chronic pruritus and comprise the study population for this paper. Patients with chronic pruritus of both systemic and cutaneous etiology were included in this study. The chronic pruritus participants were administered the entire survey, which included demographics, symptom severity, ItchyQoL (a pruritus-specific instrument that measures the symptomatic, emotional, and functional QoL impact of pruritus), and economic and family impact.

Severity

Patients indicated the severity of their symptoms on a scale of 0 (none) to 10 (worst itch ever experienced) for the past week.

Quality of life

QoL impact was measured using ItchyQoL, which was developed from focus group interviews with patients who suffered from chronic pruritus of varying etiologies. Validation and psychometrics are detailed by Desai et al.²¹ Each of the 22 items

consisted of a response from 1 (never) to 5 (all the time). An overall score and 3 subscale scores can be tabulated, namely symptomatic impact, functional limitations, and emotional impact. For this study, we analyzed each item separately.

Race

Race was self-selected by each participant. For statistical purposes, categories were grouped into “Caucasian,” “African American,” and “Other,” which included Asian, American Indian/Alaskan Native, Pacific Islander, none, and unknown. Patients who refused to answer were subsequently excluded from analyses.

Resource use

Participants were asked a series of questions on their use of medical resources and time in treating their pruritus for the previous 3 months. These resources included physician and hospital visits, time spent treating symptoms, time lost (in days) because of symptoms, extra help required for the completion of daily tasks, and costs of treatment. Subjects were also asked about the categories of frequently used medications, such as over the counter (OTC) versus prescription topical or oral products.

Statistical analysis

In our 2014 initial paper,⁵ we performed a multivariate analysis across various factors with respect to the same subscales of symptomatic impact, functional impairment, and emotional impact. Some factors that were analyzed included geographic representation, socioeconomic status, and possible etiology. These were not found to be significantly predictive of the impact on QoL because of chronic pruritus and therefore were not further explored in this paper. Although other factors, including age, marital status, certain personality domains, pruritus characteristics, duration, frequency, and race were each found to be significant independent predictors of impact on QoL by chronic pruritus, we have chosen to maintain race as the focus of this paper.

All analyses were done using chi-squared testing between the categories of a given item and race. The Fisher exact test was run for any analysis that had <5 subjects for a given condition. All participants who selected “don’t know” or “refused” for >1 item in a given subscore of the ItchyQoL survey were removed from subsequent analyses involving this scale. If a participant answered “don’t know” or “refused” for 1 item within a given subscale of the ItchyQoL, a value was imputed for that question

based on the median of that participant’s answers to the other questions within that subscale.

Resource utilization analyses were conducted using IBM SPSS software for Macintosh (version 21; IBM, Armonk, NY), and ItchyQoL analyses were performed using SAS software (version 9.3; SAS Institute, Cary, NC).

RESULTS

Population

Of the 405 subjects with chronic pruritus, 1 participant selected “unknown” for race and was subsequently removed from further analyses. The demographic characteristics of the remaining 404 subjects are summarized in Table I. The majority of the population with chronic pruritus was male (92.6%) with a mean age of 60.76. The racial distribution was similar to the most recent US Census²²: 70% white, 18% AA, and 12% other races.

Pairwise comparisons of statistically significant demographic characteristics revealed that AAs were less likely to be married (43.2%) relative to white (60.5%) or “other” subjects (59.2%). Similarly, AAs were more likely to reside in the southern region of the United States (48.6%), while those who identified as “other” were more likely to reside in the western regions (44.9%). AA subjects were also more likely to be unemployed (28.4% vs 13.5% for whites and 20.4% for “other”) and rate their pruritus severity as severe (27.0% vs 15.4% for whites and 18.4% for “other”).

Quality of life

Table II details the racial differences in the individual ItchyQoL items. Five patients answered “don’t know” or “refused” for >1 item in a subscale of the ItchyQoL, and were removed from subsequent analyses involving this scale. Nonwhites had greater impact in all items that showed a statistically significant difference in the ItchyQoL scores. The majority of items with significant differences fell under the Emotional Impact subscale. AAs felt angrier or more irritable ($P < .001$), depressed or sad ($P = .008$), and more often reported a change in personality ($P = .002$) because of their itchy skin. Both AAs and “others” were more frequently “driven crazy/nuts” ($P = .022$) from their itchy skin than whites.

For symptomatic impact, patients from the “other” race category reported more burning or stinging ($P = .036$), while nonwhites as a whole reported more negative impact from scarring ($P = .001$). Under functional limitations, AAs reported more restrictions in clothing ($P = .007$) and had to use more special

Table I. Patient demographics

	All Patients (N = 404)	White (n = 281; 69.6%)	AA (n = 74; 18.3%)	Other (n = 49; 12.1%)	Fisher exact test between whites, AAs, and other
Mean age, y (SD)	60.7 (13.1)	62.9 (12.7)	56.2 (12.8)	55.2 (12.6)	
Sex, n (%)					
Male	374 (92.6)	265 (94.3)	66 (89.2)	43 (87.8)	.104
Female	30 (7.4)	16 (5.7)	8 (10.8)	6 (12.2)	
Marital status, n (%)					
Married	231 (57.2)	170 (60.5)	32 (43.2)	29 (59.2)	.028*
Not married	173 (42.8)	111 (39.5)	42 (56.8)	20 (40.8)	
Region of residence, n (%)					
South	129 (31.9)	84 (29.9)	36 (48.6)	9 (18.4)	.002*
West	113 (28.0)	78 (27.8)	13 (17.6)	22 (44.9)	
Midwest	98 (24.3)	72 (25.6)	16 (21.6)	10 (20.4)	
Northeast	63 (15.6)	47 (16.7)	9 (12.2)	7 (14.3)	
Puerto Rico	1 (0.2)	0 (0.0)	0 (0.0)	1 (2.0)	
Education level, n (%)					
College degree or more	174 (43.1)	121 (43.1)	32 (43.2)	21 (42.9)	.977
Some college	109 (27.0)	78 (27.8)	18 (24.3)	13 (26.5)	
High school or less	121 (30.0)	82 (29.2)	24 (32.4)	15 (30.6)	
Employment status, n (%)					
Retired	184 (45.5)	141 (50.2)	24 (32.4)	19 (38.8)	.035*
Employed	107 (26.5)	74 (26.3)	20 (27.0)	13 (26.5)	
Unemployed	69 (17.1)	38 (13.5)	21 (28.4)	10 (20.4)	
Disabled/Other	44 (10.9)	28 (10.0)	9 (12.2)	7 (14.3)	
Income, n (%)	n = 386	n = 265	n = 72	n = 49	
≤\$25,000	141 (36.5)	84 (31.7)	32 (44.4)	25 (51.0)	.061
>\$25,000 and <\$50,000	139 (36.0)	102 (38.5)	24 (33.3)	13 (26.5)	
≥\$50,000	106 (27.5)	79 (29.8)	16 (22.2)	11 (22.4)	
Pruritus severity, n (%)	n = 403	n = 280	n = 74	n = 49	
None	14 (3.5)	9 (3.2)	2 (2.7)	3 (6.1)	.011*
Mild	89 (22.0)	72 (25.7)	6 (8.1)	11 (22.4)	
Moderate	228 (56.4)	156 (55.7)	46 (62.2)	26 (53.1)	
Severe	72 (17.8)	43 (15.4)	20 (27.0)	9 (18.4)	

AA, African American; SD, standard deviation.

*Statistically significant ($P < .05$).

soaps, detergents, and lotions because of their pruritus ($P = .001$).

Medical resource utilization

For their itchy skin, AAs reported greater number of visits to their primary care providers ($P = .030$) than whites or “other” races (Table III), but they reported similar numbers of visits to specialists and emergency departments. They were also more likely to use extra help for the completion of daily tasks ($P = .049$), but no difference in amount paid for extra help was found. There were no differences across racial groups in the amount of time per day spent treating itch, time lost from work because of symptoms, or medication use ($P > .05$). Among the total study population, the most frequently used medication was OTC topicals, with 62% of patients reporting such use. This was followed by

prescription topicals with 45% of patients, and OTC oral (14%) and prescription oral (13%) medications. The most commonly used OTC topicals were hydrocortisone, cortisone, and calamine lotion. The most commonly used prescription topicals, OTC oral, and prescription oral medications were triamcinolone, Benadryl, and hydroxyzine, respectively.

DISCUSSION

Racial disparities in health care access and utilization are a large problem in the United States, with limited literature surrounding this topic specifically in dermatology.^{19,22} The results from our study highlight these disparities by corroborating results of our previous study, which reported worse QoL impact for nonwhites in response to chronic pruritus.⁵ In addition, our study also

Table II. Quality of life

ItchyQoL item and definition (N = 399)	All patients, mean (SD)	Whites, mean (SD)	AAs, mean (SD)	Other, mean (SD)	Chi-squared between whites, AAs, and other
ItchyQoL 1, skin bleeds	1.98 (1.18)	1.96 (1.18)	2.03 (1.18)	2.04 (1.20)	.981
ItchyQoL 2, skin hurts	2.65 (1.26)	2.60 (1.22)	2.76 (1.28)	2.77 (1.43)	.529
ItchyQoL 3, skin burns or stings	2.86 (1.25)	2.78 (1.26)	2.92 (1.18)	3.26 (1.24)	.036*
ItchyQoL 4, scars from condition	2.13 (1.37)	1.95 (1.28)	2.58 (1.39)	2.45 (1.67)	.001*
ItchyQoL 5, need to scratch	3.78 (1.16)	3.68 (1.19)	4.04 (1.05)	3.94 (1.07)	.595
ItchyQoL 6, temperature/seasonal aggravation	2.92 (1.46)	2.78 (1.46)	3.23 (1.41)	3.28 (1.46)	.125
ItchyQoL 7, money to treat	2.02 (1.19)	1.91 (1.12)	2.32 (1.28)	2.19 (1.31)	.174
ItchyQoL 8, hard to work/do what I enjoy	2.18 (1.26)	2.06 (1.22)	2.50 (1.34)	2.40 (1.30)	.184
ItchyQoL 9, affects interaction with others	1.94 (1.18)	1.84 (1.14)	2.27 (1.32)	2.00 (1.10)	.157
ItchyQoL 10, affects how well I sleep	2.84 (1.27)	2.72 (1.27)	3.19 (1.20)	3.02 (1.24)	.126
ItchyQoL 11, difficult to concentrate	2.54 (1.17)	2.41 (1.16)	2.81 (1.19)	2.89 (1.07)	.071
ItchyQoL 12, limits clothing types	2.17 (1.39)	2.00 (1.33)	2.68 (1.50)	2.37 (1.41)	.007*
ItchyQoL 13, forces me to buy special soaps, detergents, and lotions	2.69 (1.57)	2.47 (1.55)	3.43 (1.45)	2.83 (1.56)	.001*
ItchyQoL 14, frustration	3.27 (1.36)	3.17 (1.37)	3.51 (1.35)	3.53 (1.27)	.260
ItchyQoL 15, embarrassed	2.30 (1.40)	2.17 (1.34)	2.77 (1.53)	2.30 (1.38)	.101
ItchyQoL 16, drives me crazy/nuts	2.73 (1.39)	2.58 (1.38)	3.09 (1.39)	3.11 (1.31)	.022*
ItchyQoL 17, angry or irritable	2.33 (1.28)	2.17 (1.26)	2.86 (1.31)	2.43 (1.17)	.000*
ItchyQoL 18, depressed or sad	1.82 (1.13)	1.70 (1.06)	2.27 (1.27)	1.81 (1.15)	.008*
ItchyQoL 19, worry what others think about me	1.91 (1.24)	1.80 (1.19)	2.34 (1.38)	1.89 (1.20)	.063
ItchyQoL 20, worry will last forever	2.68 (1.46)	2.65 (1.50)	2.93 (1.40)	2.45 (1.30)	.247
ItchyQoL 21, self-conscious	2.23 (1.34)	2.10 (1.32)	2.64 (1.37)	2.30 (1.27)	.067
ItchyQoL 22, personality change	1.78 (1.20)	1.63 (1.06)	2.27 (1.49)	1.87 (1.26)	.002*

AA, African American; SD, standard deviation.

*Statistically significant ($P < .05$).**Table III.** Medical resource utilization

	All patients (N = 404), n (%)	Whites, n (%)	AAs, n (%)	Other, n (%)	Fisher exact test between whites, AAs, and other
No. of PCP visits					
0	308 (76.6)	224 (80.3)	48 (62.9)	36 (73.5)	.029*
1-2	81 (20.1)	47 (16.8)	24 (32.4)	10 (20.4)	
≥3	13 (3.2)	8 (2.9)	2 (2.7)	3 (6.1)	
Time/day spent treating itch, min					
0	51 (12.7)	36 (12.9)	7 (9.5)	8 (16.3)	.279
1-15	256 (63.5)	184 (65.7)	41 (55.4)	31 (63.3)	
16-30	57 (14.1)	37 (13.2)	15 (20.3)	5 (10.2)	
>30	39 (9.7)	23 (8.1)	11 (14.9)	5 (10.2)	
Extra help used					
Yes	54 (13.4)	30 (10.7)	15 (20.3)	9 (18.4)	.049*
No	350 (86.6)	251 (89.3)	59 (79.7)	40 (81.6)	
Missed work, days					
0	247 (93.2)	174 (95.1)	40 (85.1)	33 (94.3)	.065
≥	18 (6.8)	9 (4.9)	7 (14.9)	2 (5.7)	
NA	139	98	26	14	

AA, African American; NA, not applicable; PCP, primary care physician.

*Statistically significant ($P < .05$).

found racial disparities in both QoL and medical resource utilization. Specifically, this study elucidated particular QoL items that were more

impactful to nonwhite patients that spanned all 3 constructs of QoL: symptoms, functional limitations, and emotional impact.

Racial disparities exist in symptom experience. Individual item analysis identified that patients in the “other” category reported higher levels of burning/stinging because of their pruritus. The etiology of these symptoms is unclear, but may be related to biologic differences in skin structure or innervation.²³ Other hypotheses for the racial disparity in chronic pruritus experience, such as differences in the number of mast cell granules among different races or in acidity of various skin types, have also been proposed.²³ Nonwhites as a whole, but particularly AAs, reported negative impact from scarring, which may be reflective of postinflammatory hyperpigmentation rather than true scarring. These findings could reveal a gap in coping resources or adverse social impact among AAs in response to hyperpigmentation. AAs also reported greater clothing limitation and the need for special soaps, detergents, or lotions because of their skin condition, alluding to the expanding literature on alternative therapies in medicine and the different racial preferences for these treatments.²⁴

Emotionally, AAs also reported significantly greater emotional impact from pruritus. These included being “driven crazy/nuts,” becoming angry or irritable, being depressed or sad, and experiencing a change in personality because of pruritus. Possible explanations for these emotional differences may lie in social constructs, such as frustration with the medical system and perceived racism.²⁵ While systemic comorbidities may also be a source of additional negative emotional impact, the ItchyQoL specifically asks about dermatologic conditions.

Resource utilization also varied among races. In this study, AAs had significantly more visits to primary care physicians (PCPs), yet had previously been found to have fewer visits per capita to dermatologists or specialists and fewer medical visits for skin disease overall than white patients.¹⁷ Numerous previous studies have correlated racial disparities in medical visits to insurance status. Studies have found that many dermatologists do not accept certain types of health insurance, limiting access to care for specific populations.²⁶ However, insurance coverage may not be sufficient to address dermatologic racial disparities, because this US Veteran study sample was all equally insured. Other factors, including individual, interpersonal, or system-level factors may influence resource utilization. Indeed, significant racial disparities in medical treatment have been found even within the Veterans Affairs system.²⁷

One possible explanation is that AA patients may have stronger relationships with their PCPs, and

therefore prefer a familiar provider rather than a specialist for dermatologic issues. Unfortunately, there is a strong history of distrust of the medical system with AA patients,^{25,28-31} making the last hypothesis a particularly feasible, yet concerning, explanation.

Alternatively, a knowledge gap among PCPs regarding the impact of chronic pruritus on AA patients may exist. Chronic pruritus lacks the same level of awareness as chronic pain. Both are subjective symptoms that can greatly impact QoL, and our previous work found that symptom severity, not type of symptom, best predicted QoL impact.¹⁵ However, there is much more attention paid to pain, which has been acknowledged as a legitimate health concern. The Joint Commission³² and the Agency for Healthcare Research and Quality³³ provide guidelines for the assessment and management of chronic and acute pain. Such similar assessment and management strategies for itch are lacking, potentially contributing to the underutilization of dermatologists in the comanagement of chronic pruritus.

Limitations

Our study may not be generalizable because our sample is from a US Veteran population. The external relevance of our results could also be improved by stratifying race into US and non-US born. Our veteran population may have higher rates of mental distress or negative life experiences than the general population, which, in addition to poor social support and negative life events, are factors that have been associated with pruritus prevalence.^{16,34} Additional limitations to this study include the relatively older aged sample, possible selection bias given the survey participation rate (17.9%), and recall bias given that the resource utilization component was based on the previous 3 months. Other variables could also influence results, such as climate, humidity, and altitude, but we included geography in our initial analyses, which was hopefully an adequate proxy measure.

The strengths of our study include the sample size, random selection design, and survey method of interviewing individual patients. Given that health disparities may have multiple etiologies that can stem from the provider themselves, obtaining health care information directly from patients rather than medical charts may provide a new perspective and clearer picture for often skewed medical resource utilization data.

In conclusion, our findings suggest that a racial disparity exists in the QoL impact and resource utilization from chronic pruritus. Future studies are

indicated to determine if such disparities exist in the general population and to explore the potential etiologies. Possible factors include innate biologic differences, social science constructs, and differential use of conventional and alternative therapies.

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