Table II. Educational characteristics of matched US allopathic seniors in dermatology, 2007 to 2016

	All specialties*						Dermatology					
Educational characteristics	**2007†**	**2009†**	**2011**	**2014**	**2016**	**Change**	**2007**	**2009**	**2011**	**2014**	**2016**	**Change**
USMLE step 1 score, mean	221	225	226	230	233	12	238	242	244	247	249	11
USMLE step 2 CK score, mean	226	231	235	243	245	19	242	251	253	255	257	15
Research experiences, mean	2.0	2.2	2.3	2.7	3.0	1.0	3.4	3.6	3.7	4.3	4.7	1.3
Abstracts, presentations, and publications, mean	2.2	2.8	3.2	4.2	4.7	2.5	5.7	7.2	7.5	9.5	11.7	6.0
AOA member, %	14.1	15.3	15.0	16.0	17.3	3.2 pp	47.0	51.4	50.8	50.8	52.8	5.8 pp
PhD degree, %	4.0	4.2	4.4	3.9	4.1	0.1 pp	11.6	11.2	9.1	5.1	8.0	−3.6 pp
Other graduate degree, %	10.3	11.0	11.0	15.2	16.9	6.6 pp	6.8	9.8	8.1	14.1	12.8	6.0 pp

AOA, Alpha Omega Alpha; *CK*, clinical knowledge; *pp*, percentage point; *USMLE*, United States Medical Licensing Examination.
*Only specialties with 50 or more positions are included.
†Transitional year residency applicants are included only in these years.

100%, the persistently low match rates in dermatology imply that accelerated creation of dermatology residency positions would yield a nearly 1:1 increase in matched applicants and, in turn, in dermatologists entering practice annually. The Balanced Budget Act (1997) capped the number of residents considered in calculating direct and indirect graduate medical education reimbursement at 1996 levels.[6] Thus, to expand the number of residency positions as a means of addressing a shortage of dermatologists, self-funding or other non-Medicare funding would be necessary.

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Funding sources: None.

Conflicts of interest: None disclosed.

Reprints not available from the authors.

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https://doi.org/10.1016/j.jaad.2018.06.071

Density and distribution of acral melanocytic nevi and acral melanomas on the plantar surface of the foot

To the Editor: Acral melanoma (AM) is a distinct subtype of melanoma with unique clinical, morphologic, and genetic features. AM occurs on sun-protected skin, has a unique genetic profile with a lack of ultraviolet light signature mutations, a lower mutational burden, and a high number of copy number and structural changes.[1] Unlike cutaneous melanoma (CM), AMs are rarely associated with nevi (≤11%).[2] AMs are more common on certain weight-bearing areas of the feet in Japanese and white patients[3,4]; acral melanocytic nevi (AMN) are more common on non−weight-bearing areas in Korean patients.[5] If AMs evolve from AMN or an intermediate precursor, the location and incidence of AMs and AMN or atypical AMN should correlate. Herein, we compare the distribution of AMN and atypical AMN to the distribution of AM on the plantar surface of the foot in a predominately white population.

This study was approved by our institutional review board. A retrospective search of the pathology records was performed from 2000 to 2016 at Mayo Clinic. Two hundred and eighty-four

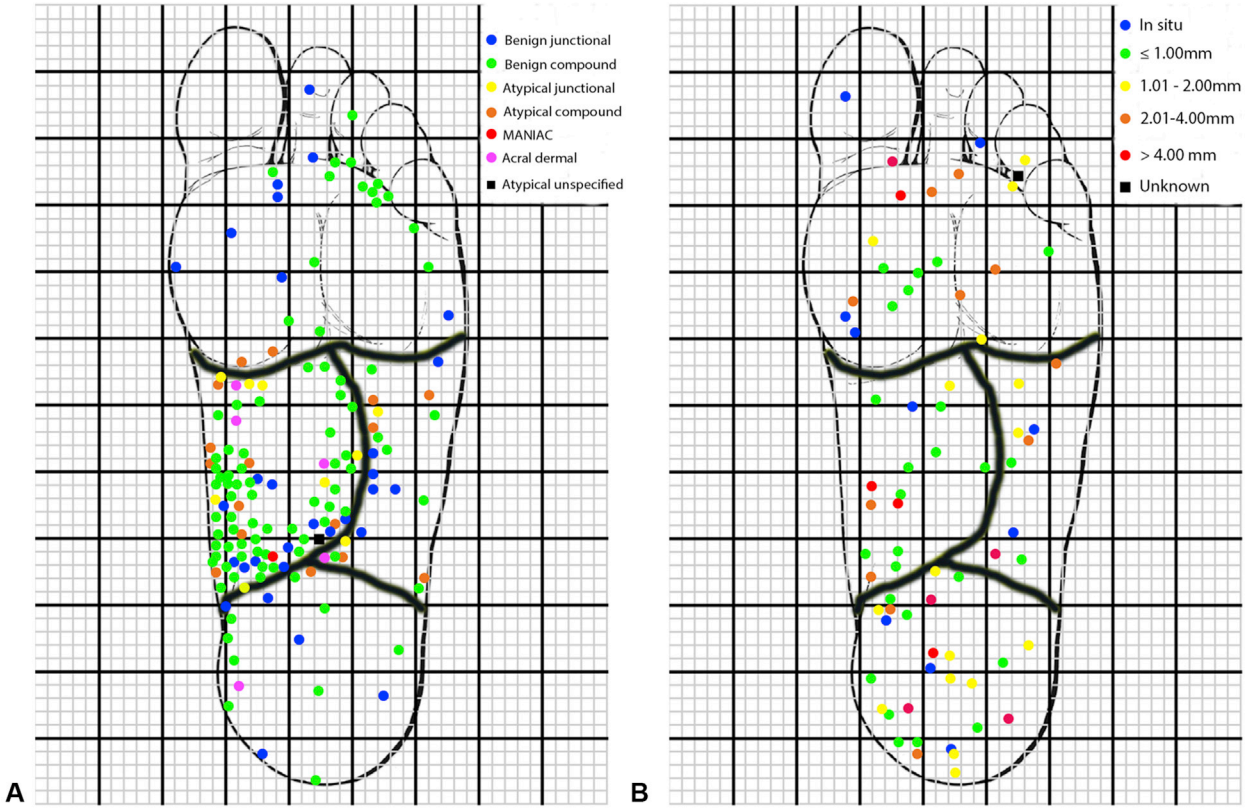

Fig 1. Distribution of acral melanocytic nevi and acral melanoma. **A,** The exact distribution of acral melanocytic nevi and atypical acral melanocytic nevi on the plantar surface of the foot (n = 147). **B,** The exact distribution of acral melanomas on the plantar surface of the foot (n = 73).

cases met inclusion criteria: 1) biopsy-confirmed AM, AMN, or atypical AMN; 2) location on the plantar surface of the foot. A chart review was performed, and lesions were mapped by exact location and consolidated into weight-bearing (ie, heel, lateral midfoot, and forefoot) and non–weight-bearing (arch) regions. Age, distribution, and distribution uniformity were compared with the Kruskal–Wallis test, the Fisher exact test, and a chi-square goodness of fit test. The significance level was 0.05.

A total of 122 AMs (73, exact location), 137 AMN (122, exact location), and 25 atypical AMN (25, exact location) were included in the study (Fig 1). There were no significant differences in the distribution of AM, AMN, and atypical AMN based upon race, ethnicity, and gender (Supplemental Table I, available online at www.jaad.org). The mean (standard deviation) age at the time of diagnosis was 69.7 (13.2) years for AM, 50.5 (17.1) years for AMN, and 46.1 (18.2) years for atypical AMN ($P < .001$). The weight-bearing surface represented 81.4% of the plantar surface area and contained 84.4% of AM compared to 46.7% of the AMN and 40% of the atypical nevi ($P < .001$). The non–weight-bearing surface contained 53.3% of AMN and 60.0% atypical AMN compared to 15.6% of AM ($P < .001$; Supplemental Table II, available online at www.jaad.org). There were no differences in the distribution of AMN and atypical AMN.

Our study examined the distribution of AM, AMN, and atypical AMN on the plantar surface of the foot. When corrected for surface area, there was an inverse relationship in the distribution of AMN and atypical AMN compared with AM. Previous studies[4] have suggested that mechanical stress promotes the formation of melanoma on the plantar surface of the foot; however, these findings were not validated by our recent study.[3] Additional studies found AMN concentrated in non–weight-bearing areas of the feet.[5] A recent study using targeted sequencing of AM and AMN found that the mutational profile of AMN was akin to common cutaneous nevi.[1] Future studies are needed to delineate the mutational landscape and evolutionary pathways of AM and AMN. Our study was limited by its retrospective nature and predominately white population.

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Presented at the International Investigative Dermatology meeting, May 16-19, 2018, Orlando, Florida.

Funding sources: None.

Conflicts of interest: None disclosed.

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https://doi.org/10.1016/j.jaad.2018.07.019

Association of alopecia areata with hospitalization for mental health disorders in US adults

To the Editor: Patients with alopecia areata (AA) commonly experience psychologic distress and impaired quality of life,[1,2] which may result in mental health (MH) disorders. We sought to determine whether AA is associated with MH disorders.

Data were analyzed from the 2002 to 2012 National Inpatient Sample, which is a representative cross-sectional 20% sample of US hospitalizations (N = 87,053,155 adults and children). AA was identified by *International Classification of Diseases, Ninth Revision, Clinical Modification* code 704.01. The reference group included all patients without AA. MH comorbidities (primary or secondary diagnosis) and primary admissions (primary diagnosis) were determined by Clinical Classification Software codes 650 to 663 and 670. Statistical analyses were performed by using SURVEY procedures, including sample strata, clusters, and discharge trend weights in SAS software (version 9.4, SAS Institute Inc, Cary, NC). Logistic regression models were used to assess associations between AA and MH disorders. Complete case analysis was performed. A 2-sided *P* value less than .05 was considered statistically significant.

All data were de-identified, and no attempt was made to identify any patients in the database. All parties were compliant with the National Inpatient Sample formal data use agreement. The study was approved by the institutional review board at Northwestern University, and patient consent was waived, as all databases were de-identified. There were 5605 weighted admissions with a diagnosis of AA; more than 99% of AA diagnoses were secondary. Compared with inpatients without AA, inpatients with AA were younger (mean age, 42.2 vs 47.9 years [$P < .0001$]), more frequently female (61.7% vs 58.6% [$P = .0297$]), and uninsured (8.1% vs 5.5% [$P < .0001$]), but they did not differ from those without AA in terms of race/ethnicity (66.3% of those with AA were white vs 65.3% of those without AA [$P = .25$]).

Inpatients with versus without AA had higher proportions of any (32.8% [95% confidence interval (CI), 30.4%-35.1%] vs 20.0% [95% CI, 19.8%-20.3%]) and primary (5.5% [95% CI, 4.2%-6.8%] vs 2.2% [95% CI, 2.1%-2.3%]) MH diagnosis ($P < .0001$). In multivariable models, AA was associated with any MH disorder, including 13 of the 15 disorders examined (Fig 1, *A*). AA was also associated with primary admission for any MH disorder, including anxiety, mood, attention-deficit/hyperactivity and conduct, and psychotic disorders (Fig 1, *B*). The mean length and cost of primary hospitalization for an MH disorder in patients with AA were 6.0 days (range, 5.4-6.6) and $11,907 [range, $10,312-$13,503].

These results expand on previous studies. A questionnaire study of 294 patients with AA found that 8.8% had a major depressive episode and 18.2% had generalized anxiety disorder, compared with only 1.3% to 3.5% and 2.5% of individuals in the general population, respectively.[3] A case-control study of 50 Indian patients with AA found higher rates of clinical depression (38% vs 20%) and anxiety

Supplemental Table I. Demographics by diagnosis

	Atypical (n = 25)	Benign (n = 137)	Malignant (n = 122)	Total (n = 284)	*P* value
Age					<.001*
n	25	137	122	284	
Mean age, years (SD)	46.1 (18.2)	50.5 (17.1)	69.7 (13.2)	58.4 (18.5)	
Median age, years	47.0	50.0	72.5	61.0	
Range	(15.0-76.0)	(16.0-89.0)	(31.0-98.0)	(15.0-98.0)	
Gender, n (%)					
Male	8 (32.0)	56 (40.9)	47 (38.5)	111 (39.1)	
Female	17 (68.0)	81 (59.1)	75 (61.5)	173 (60.9)	
Race					
Missing	0	6	14	20	
American Indian or Alaska Native, n (%)	1 (4.0)	1 (0.8)	1 (0.9)	3 (1.1)	
Asian	1 (4.0)	9 (6.9)	1 (0.9)	11 (4.2)	
Black or African American	1 (4.0)	9 (6.9)	1 (0.9)	11 (4.2)	
White	22 (88.0)	109 (83.2)	104 (96.3)	235 (89.0)	
Hispanic or Latino	0 (0.0)	3 (2.3)	1 (0.9)	4 (1.5)	

*Kruskal–Wallis test.

Supplemental Table II. Lesion location and weight-bearing classification by diagnosis

	Atypical AMN (n = 25)	AMN (n = 137)	AM (n = 122)	Total (n = 284)	*P* value
Plantar foot lesions, n (%)					<.001*
Heel	1 (4.0)	24 (17.5)	56 (45.9)	81 (28.5)	
Arch	15 (60.0)	73 (53.3)	19 (15.6)	107 (37.7)	
Lateral midfoot	7 (28.0)	16 (11.7)	10 (8.2)	33 (11.6)	
Forefoot	2 (8.0)	24 (17.5)	37 (30.3)	63 (22.2)	
Lesion load, n (%)					<.001*
Non−weight-bearing	15 (60.0)	73 (53.3)	19 (15.6)	107 (37.7)	
Weight-bearing	10 (40.0)	64 (46.7)	103 (84.4)	177 (62.3)	

*Fisher exact test.