Letters

RESEARCH LETTER

Evaluating Areas of Preferred Hair Loss: Potential Implications for Rating Alopecia Severity

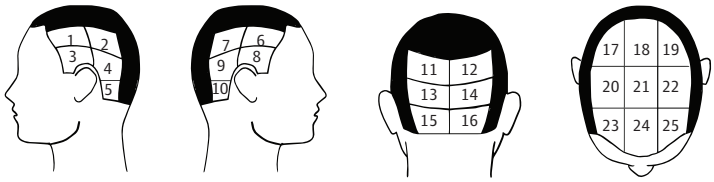
The impact and management of cutaneous disorders vary as a function of body location.[1] In alopecias, disease severity is currently measured by percentage of hair lost, with all scalp areas weighted equally in their influence on disease severity.[2-4] These severity ratings have been found to correlate poorly with quality-of-life impairment across alopecias,[3-5] and we hypothesize that the differential influence of alopecia as a function of location may contribute to this discordance. In this study, we sought to determine whether there is a preference for location of hair loss on the scalp.

Supplemental content

Methods | We designed a survey that presented 3 pairs of randomly selected, equally sized scalp segments (eFigure in the Supplement). Respondents chose which of the 2 segments, if obligated, they would "prefer to have complete hair loss." The survey link was available on Amazon Mechanical Turk over a 24-hour period for adults 18 years and older in the US.

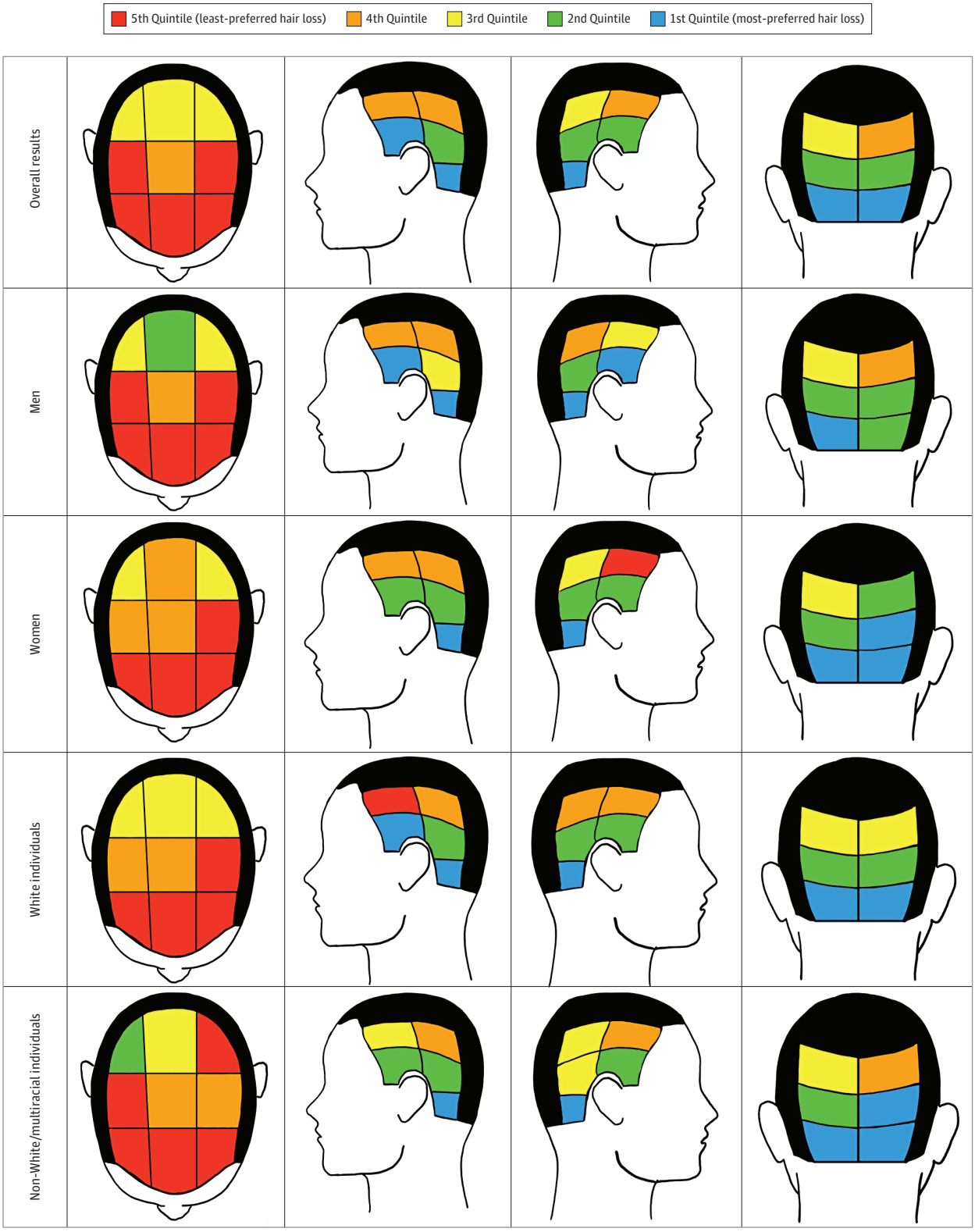
The 25 segments were ranked by the percentage of times they were chosen as the preferred area of alopecia for the overall sample and stratified by self-reported age, sex, and race. Data management and analysis were performed using SAS, version 9.4 (SAS Institute). This project was approved by the Part-

Figure 1. Ranking of Scalp Alopecia Location From Most to Least Preferred



Quintile group	Overall		Men		Difference (men−women), %	White individuals		Difference (White individuals−non-White individuals), %
	Scalp area	Percentage preferred	Scalp area	Percentage preferred		Scalp area	Percentage preferred	
1st (Most preferred)	10	84.7	5	85.3	5.9	10	85.1	1.8
	5	82.4	10	81.2	-7.7	5	83.8	6.2
	15	72.7	15	68.6	-8.4	15	73.9	5.3
	16	68.1	3	65.7	12.4	16	69.0	4.1
	3	60.1	8	62.6	5.9	3	60.3	0.8
2nd	8	59.8	16	61.6	-15.4	8	59.4	-2.1
	14	58.3	18	55.7	10.6	9	58.4	4.9
	9	57.3	9	52.7	-9.5	13	56.8	-1.5
	13	57.1	13	52.4	-10.1	14	55.9	-9.8
	4	54.0	14	52.3	-13.5	4	53.6	-1.6
3rd	18	50.9	4	51.9	-4.9	18	52.3	5.9
	11	48.7	17	46.7	-3.6	19	50.5	14.8
	17	48.1	6	46.2	13.7	11	49.3	2.4
	19	47.3	11	45.8	-6.5	17	46.3	-7.4
	7	45.4	19	45.4	-3.8	12	44.5	3.2
4th	12	43.7	21	43.0	6.1	7	43.4	-8.8
	2	41.1	1	42.2	3.4	20	40.7	11.6
	1	40.7	7	41.7	-8.5	2	40.5	-2.4
	21	40.1	12	38.7	-11.6	6	40.3	3.5
	6	39.6	2	38.1	-6.1	21	39.7	-1.6
5th (Least preferred)	20	37.9	20	36.8	-2.4	1	39.7	-4.0
	22	34.7	22	35.8	2.8	22	33.3	-6.0
	25	28.9	25	35.8	14.5	25	27.6	-6.4
	23	26.0	23	33.0	14.7	23	25.2	-3.6
	24	22.7	24	31.1	18.6	24	22.6	-0.6

Figure 2. Preferred Scalp Areas of Complete Hair Loss Grouped by Quintiles and Presented by Sex and Race Categories



ners HealthCare Institutional Review Board, and survey completion was considered to be informed consent for study participation.

Results | The survey was started by 2195 respondents and completed by 2137 respondents (97.4%). The mean age was 36.2 (range, 18-81) years, 54.1% were male, and 77.5% were White/

Caucasian. Overall, frontal areas of the scalp were the least preferred areas of hair loss, while temporal and inferior occipital areas were most preferred (**Figure 1** and **Figure 2**). When comparing the ranked scalp areas from most to least preferred between groups, preference variations by sex greater than 5 rank positions (1 quintile) were seen, with male preference for the vertex and right-temporal area and female preference for the right-superior occiput (gender median difference in percentage preferred, −3.6%; IQR, −8.4% to 6.1%).

Similarly, variations by race were seen with White/Caucasian preference in the left-adjacent vertex and right-midfrontal areas, and non-White preference in the left temporal area (racial median difference in percentage preferred, −0.6%; interquartile range, −3.6% to 4.1%).

Discussion | Our results demonstrate clear alopecia localization preferences, with overall trends demonstrating more concern in the front of the scalp. These alopecia localization preferences vary by sex and race, suggesting that similar alopecia patterns could differentially affect patients.

These location preferences are not reflected in currently used alopecia severity grading systems,[2-4] possibly contributing to established discordance between disease severity and influence on quality of life.[3-5] Severity scales translate into clinical trial inclusion criteria, and subsequent treatment approval/reimbursement.[6] If insurance plans only approve treatment for patients whose disease is measured solely by extent, but not location, of alopecia, patients experiencing heightened emotional morbidity owing to the location of their hair loss may not qualify for coverage of systemic medications—a similar problem faced by patients with psoriasis.[1,6] Future efforts for determining alopecia severity should assess whether incorporating disease location in their evaluation improves the accuracy of instruments.

Analysis of the reasons for respondents' choices with regard to hair loss preferences was not addressed in this study and is an area for future work. Other limitations were the use of a convenience sample, insufficient responses among non-White individuals to allow intra-race preference analysis, and that response to hypothetical alopecia may differ from that of true alopecia.

This study demonstrates that localization of scalp alopecia is important and should be incorporated into future assessments of clinical severity. Doing so may improve accuracy in capturing overall disease burden and access to clinical trials and care for patients whose disease causes severe quality-of-life impairment despite minimal body surface area involvement.

Andrew Creadore, BS
Priya Manjaly, BA
Sara J. Li, BS
Cara Joyce, PhD
Kathie P. Huang, MD
Arash Mostaghimi, MD, MPA, MPH

Author Affiliations: Department of Dermatology, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts.

Accepted for Publication: June 15, 2020.

Corresponding Author: Arash Mostaghimi, MD, MPA, MPH, Department of Dermatology, Brigham and Women's Hospital, Harvard Medical School, 221 Longwood Ave, Boston, MA 02115 (amostaghimi@bwh.harvard.edu).

Published Online: September 9, 2020. doi:10.1001/jamadermatol.2020.2930

Author Contributions: Drs Mostaghimi and Joyce had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Drs Huang and Mostaghimi contributed equally to the work.
Study concept and design: Manjaly, Li, Huang, Mostaghimi.
Acquisition, analysis, or interpretation of data: Creadore, Li, Joyce, Huang, Mostaghimi.
Drafting of the manuscript: Creadore.
Critical revision of the manuscript for important intellectual content: All authors.
Statistical analysis: Creadore, Joyce.
Obtained funding: Mostaghimi.
Administrative, technical, or material support: Creadore, Li, Huang, Mostaghimi.
Study supervision: Huang, Mostaghimi.

Funding/Support: This work was supported by departmental funds of the Department of Dermatology, Brigham and Women's Hospital, Boston, Massachusetts.

Role of the Funder/Sponsor: The Department of Dermatology, Brigham and Women's Hospital, had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Conflict of Interest Disclosures: Drs Huang and Mostaghimi have received royalty payments from Pfizer for licensing of the ALTO tool and have participated in clinical trials related to alopecia from Incyte, Eli Lilly and Company, Concert, and Aclaris outside the submitted work. In addition, Dr Mostaghimi has received consulting fees from Pfizer, 3Derm, and Hims, and having equity in Hims and Lucid outside the submitted work. No other disclosures were reported..

Disclaimer: Dr Mostaghimi is an Associated Editor of *JAMA Dermatology* but was not involved in any of the decisions regarding review of the manuscript or its acceptance.

1. Dopytalska K, Sobolewski P, Błaszczak A, Szymańska E, Walecka I. Psoriasis in special localizations. *Reumatologia*. 2018;56(6):392-398. doi:10.5114/reum.2018.80718

2. Olsen EA, Roberts J, Sperling L, et al. Objective outcome measures: collecting meaningful data on alopecia areata. *J Am Acad Dermatol*. 2018;79(3):470-478.e3. doi:10.1016/j.jaad.2017.10.048

3. Chiang YZ, Bundy C, Griffiths CEM, Paus R, Harries MJ. The role of beliefs: lessons from a pilot study on illness perception, psychological distress and quality of life in patients with primary cicatricial alopecia. *Br J Dermatol*. 2015;172(1):130-137. doi:10.1111/bjd.13259

4. Saceda-Corralo D, Moreno-Arrones ÓM, Fonda-Pascual P, et al. Development and validation of the Frontal Fibrosing Alopecia Severity Score. *J Am Acad Dermatol*. 2018;78(3):522-529. doi:10.1016/j.jaad.2017.09.034

5. Reid EE, Haley AC, Borovicka JH, et al. Clinical severity does not reliably predict quality of life in women with alopecia areata, telogen effluvium, or androgenic alopecia. *J Am Acad Dermatol*. 2012;66(3):e97-e102. doi:10.1016/j.jaad.2010.11.042

6. Krueger GG, Feldman SR, Camisa C, et al. Two considerations for patients with psoriasis and their clinicians: what defines mild, moderate, and severe psoriasis? what constitutes a clinically significant improvement when treating psoriasis? *J Am Acad Dermatol*. 2000;43(2)(pt 1):281-285. doi:10.1067/mjd.2000.106374