



Published in final edited form as:

J Am Acad Dermatol. 2020 November ; 83(5): 1450–1452. doi:10.1016/j.jaad.2020.02.053.

Prevalence of moderate-to-severe acne in transgender adults: a cross-sectional survey

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Keywords

acne vulgaris; moderate to severe acne; transgender; gender affirmation; gender affirming; hormone therapy

Moderate-to-severe acne imposes significant psychosocial and quality-of-life burdens and may be triggered by endogenous androgens or exogenous hormone therapy (HT).^{1–3} While moderate-to-severe acne warranting isotretinoin treatment has been observed in case series,⁴ the epidemiology and severity of acne in transgender populations remains to be characterized.

We aimed to determine the prevalence of moderate-to-severe acne in a cross-sectional survey of transgender adults nested in the multicenter Study of Transition, Outcomes, and Gender (STRONG). Emory University Institutional Review Board approved this study. STRONG cohort eligibility included enrollment in Kaiser Permanente Northern California, Southern California, or Georgia between January 1, 2006 and December 31, 2014. Participants were adults 18 years old with 1 transgender-specific International Classification of Diseases, Ninth Edition diagnostic code and/or medical records review. Survey methods were detailed

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Conflicts of Interest: Dr. Yeung previously received honorarium from Syneos Health.

Prior Presentation: The abstract was presented at the American Acne & Rosacea Society and the Society of Investigative Dermatology on May 8, 2019.

IRB Statement: Reviewed and approved by Emory University Institutional Review Board #00113741

elsewhere.⁵ Eligibility included physician consent for contact and self-reported gender identity differing from sex recorded at birth. Participants reported if they had “moderate-to-severe acne (pimples) as diagnosed by a doctor,” their history of gender-affirming therapies, and if they thought their acne was linked to HT. Acne prevalence in transmasculine (TM) and transfeminine (TF) persons were compared using chi-square or Fisher’s exact tests, with two-sided $P < 0.05$ considered significant. Prevalence ratios [PR] for moderate-to-severe acne were adjusted for age in stratified analyses using Mantel-Haenszel methods in SAS 9.4 (SAS Institute, Cary, NC).

Among 2,136 eligible participants, 696 (32.6%) completed the survey, including 346 TM and 350 TF persons (Table 1). Most received HT (91.7%) and underwent 1 gender-affirming surgery (58.1%). Overall, 20.8% of transgender persons reported any history of moderate-to-severe acne. TM persons were more likely than TF persons to report any history of moderate-to-severe acne (28.0% vs 13.7%, $P < 0.001$; age-adjusted PR 1.64, 95% CI, 1.17–2.30) and current moderate-to-severe acne (13.6% vs. 0.9%, $P < 0.001$; age-adjusted PR 8.27, 95% CI, 2.80–24.41), but were less likely to have any dermatologist visit (44.5% vs. 55.1%, $P < 0.001$). Among those with moderate-to-severe acne, TM persons were more likely than TF persons to attribute acne to HT (65.6% vs 4.4%, $P < 0.001$). There was no significant association between current moderate-to-severe acne and either current testosterone use or route of testosterone administration in TM persons (Table 2).

In this first multicenter survey of moderate-to-severe acne in transgender persons, TM persons were more likely to report moderate-to-severe acne as compared to TF persons. This is consistent with known effects of estrogen and testosterone on acne.^{1,3} Limitations included the cross-sectional design and reliance on self-reports. Clinical images and medical records data will validate acne severity or establish the duration and dosage of HT in future studies. The specific question on moderate-to-severe acne prevented examination of mild acne epidemiology. Survey participants were privately insured, which limited external validity to transgender persons with lower access to care. Future studies should examine the interaction of age, effects of HT dose, duration, and route of administration on acne incidence and severity. Longitudinal, prospective data on the natural history, severity, treatment, and psychosocial impact of acne are needed to optimize skin and quality-of-life outcomes of gender-affirming HT in transgender populations.

Funding:

This study is supported in part by PCORI contract AD-12-11-4532 and grant R21HD076387 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (M.G.); the National Center for Advancing Translational Sciences grants UL1TR002378 and KL2TR002381 (H.Y.); and the National Institute for Arthritis and Musculoskeletal and Skin Diseases loan repayment program L30AR076081 (H.Y.).

References

1. Yeung H, Luk KM, Chen SC, et al. Dermatologic care for lesbian, gay, bisexual, and transgender persons: Epidemiology, screening, and disease prevention. *J Am Acad Dermatol.* 2019;80(3):591–602. [PubMed: 30744875]
2. Motosko CC, Zakhem GA, Pomeranz MK, Hazen A. Acne: a side-effect of masculinizing hormonal therapy in transgender patients. *Br J Dermatol.* 2019;180(1):26–30. [PubMed: 30101531]

3. Wierckx K, Van de Peer F, Verhaeghe E, et al. Short- and long-term clinical skin effects of testosterone treatment in trans men. *J Sex Med.* 2014;11(1):222–229. [PubMed: 24344810]
4. Yeung H, Chen SC, Katz KA, et al. Prescribing isotretinoin in the United States for transgender individuals: Ethical considerations. *J Am Acad Dermatol.* 2016;75(3):648–651. [PubMed: 27543225]
5. Owen-Smith AA, Gerth J, Sineath RC, et al. Association Between Gender Confirmation Treatments and Perceived Gender Congruence, Body Image Satisfaction, and Mental Health in a Cohort of Transgender Individuals. *J Sex Med.* 2018;15(4):591–600. [PubMed: 29463478]

Table 1.

Demographics and prevalence of moderate-to-severe acne in transgender adults^a

	All	TM ^b	TF ^c	P
Characteristics, N (%)	696 (100)	346 (49.7)	350 (50.3)	
Age at time of survey (years)				<0.001
18–29	217 (31.2)	148 (42.8)	69 (19.7)	
30–39	156 (22.4)	104 (30.1)	52 (14.9)	
40–54	168 (24.1)	69 (19.9)	99 (28.3)	
55	155 (22.3)	25 (7.2)	130 (37.1)	
Race/ethnicity				0.66
Non-Hispanic White	392 (56.3)	191 (55.2)	201 (57.4)	
Non-Hispanic Black	20 (2.9)	13 (3.8)	7 (2.0)	
Non-Hispanic Asian/Pacific Islander	48 (6.9)	25 (7.2)	23 (6.6)	
Hispanic	133 (19.1)	68 (19.7)	65 (18.6)	
Other / Declined	103 (14.8)	49 (14.2)	54 (15.4)	
History of gender-affirming treatments ^d				<0.001
None	28 (4.0)	11 (3.2)	17 (4.9)	
Hormone therapy only	234 (33.6)	76 (22.0)	158 (45.1)	
Chest surgery without genital surgery	171 (24.6)	142 (41.0)	29 (8.3)	
Genital surgery with or without chest surgery	233 (33.5)	103 (19.8)	130 (37.2)	
Missing information	30 (4.3)	14 (4.1)	16 (4.6)	
Moderate-to-severe acne diagnosis by a physician ^e				<0.001
No	449 (64.5)	208 (60.1)	241 (68.9)	
Yes - currently	50 (7.2)	47 (13.6)	3 (0.9)	
Yes - in the past	95 (13.7)	50 (14.5)	45 (12.9)	
Missing information	102 (14.7)	41 (11.9)	61 (17.4)	
Ever diagnosis of moderate or severe acne (current or past)	145 (20.8)	97 (28.0)	48 (13.7)	<0.001
Moderate or severe acne linked to hormone therapy				<0.001
No	76 (53.9)	33 (34.4)	43 (95.6)	
Yes	65 (46.1)	63 (65.6)	2 (4.4)	
Any visit to a dermatologist	347 (49.9)	154 (44.5)	193 (55.1)	<0.001

TM, transmasculine; TF, transfeminine

^aNumbers may not add up to the total number of participants because, unless otherwise specified, we excluded categories with missing data totaling less than 5%.

^bTransmasculine refers to transgender persons with current gender identity that differs from female natal sex

^cTransfeminine refers to transgender persons with current gender identity that differs from male natal sex

^dChest surgery referred to any history of mastectomy or breast augmentation, while genital surgery referred to any history of hysterectomy, orchiectomy, vaginectomy, and/or vaginoplasty. The majority (98.3%) of respondents with a history of chest surgery and/or genital surgery has received hormone therapy.

^eWe combined the missing category with no prior history of moderate-to-severe acne to produce conservative estimates of current moderate-to-severe acne prevalence. Acne prevalence may be underestimated in transfeminine persons given higher levels of missing acne data.

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Table 2.

Age-stratified prevalence of moderate-to-severe acne in transgender adults and association with current testosterone use in transmasculine adults

Age	Moderate-to-severe acne	All	TM	TF	P
18–29	No	127 (58.5)	83 (56.1)	44 (63.8)	0.004
	Yes - currently	38 (17.5)	35 (23.7)	3 (4.4)	
	Yes - in the past	31 (14.3)	18 (12.2)	13 (18.8)	
	Missing	21 (9.7)	12 (8.1)	9 (13.0)	
30–39	No	105 (67.3)	67 (64.4)	38 (73.1)	0.35
	Yes - currently	5 (3.2)	5 (4.8)	0 (0)	
	Yes - in the past	27 (17.3)	20 (19.2)	7 (13.5)	
	Missing	19 (12.2)	12 (11.5)	7 (13.5)	
40–54	No	116 (69.1)	41 (59.4)	75 (75.8)	0.004
	Yes - currently	7 (4.2)	7 (10.1)	0 (0)	
	Yes - in the past	21 (12.5)	9 (13.0)	12 (12.1)	
	Missing	24 (14.3)	12 (17.4)	12 (12.1)	
55	No	101 (65.2)	17 (68.0)	84 (64.6)	0.84 ^a
	Yes - currently	0 (0)	0 (0)	0 (0)	
	Yes - in the past	16 (10.3)	3 (12.0)	13 (10.0)	
	Missing	38 (24.5)	5 (20.0)	33 (25.4)	
			Current Moderate-to-Severe Acne in TM		
		N (%)	Yes	No	Age-adjusted PR (95% CI)
Current testosterone use					
	No	58 (16.8)	6 (10.3)	52 (89.7)	[reference]
	Yes	288 (83.2)	41 (14.2)	247 (85.8)	1.26 (0.58–2.73)
Route of testosterone administration					
	Injection alone	244 (84.7)	35 (14.3)	209 (85.7)	[reference]
	Other regimens ^b	44 (15.3)	6 (13.6)	38 (86.4)	1.08 (0.49–2.40)

TM, transmasculine; TF, transfeminine; PR, prevalence ratio; N/A, not applicable

^aFisher’s exact test for patients 55 years old excluded the zero row since there were no patients reporting current moderate-to-severe acne.

^bOther regimens include testosterone gel, patch, and/or oral testosterone alone or in combination with testosterone injection