

Generic vs. disease-specific patient reported outcome (PRO) instruments for assessing HRQoL burden among patients diagnosed with alopecia areata: Evidence from TARGET-DERM AA

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Introduction

- Alopecia areata (AA) is a chronic, autoimmune disease characterized by patchy hair loss.
- Prior studies have demonstrated decreased QoL in AA patients, with worsening QoL linked¹ to increased disease severity.
- Compared to other disease areas, recent work² has signaled a potential shortcoming, that generic quality of life (QOL) questionnaires are not sufficiently sensitive to the impact of AA disease severity.

Objective

- To investigate the Short-Form 36, the dermatology life quality index (DLQI), and the Alopecia Areata Patient Priority Outcomes (AAPPO) for similar shortcomings.

Methods

- Patients of all ages enrolled from December 2021 to June 2024 in TARGET-DERM AA (data collection ongoing) in the United States and Canada were grouped by Severity of Alopecia Tool (SALT) score (1-20, 21-49, or 50-100).

- A cross-sectional analysis of patient responses at enrollment was completed. Patients completed the AAPPO and DLQI questionnaire as well as the RAND MOS Short-Form 36.

- The SF-36 has 8 subdomain scores (vitality, physical function, bodily pain, general health, physical role function, emotional role function, social role function, mental health, range 0-100) along with the physical component summaries (PCS, range 0-100), mental component summaries (MCS, range 0-100), and the SF-6D utility index score (Range 0-1).

- The following clinician-reported outcomes were collected at enrollment:
 - Clinician's Global Impress of AA (CGI-AA, Range:0-4)
 - Percent Hair Loss (Range:0-100%)
 - Eyebrow involvement (Range:0-3)
 - Eyelash involvement (Range:0-3)
 - Alopecia totalis (AT, Yes/No)
 - Alopecia universalis (AU, Yes/No).

- The Chi-square, Fisher exact, and Kruskal-Wallis tests were used to compare differences in subgroups.

- Inclusion Criteria:
 - Enrolled in TARGET-DERM AA
 - Completed patient questionnaires at enrollment

Results

- Of the 141 AA patients, 61.7% were female; 95.0% adults, and 67.4% Non-Hispanic White (Table 1).

- When comparing the SALT 1-20 and the SALT 50-100 subgroups, significant differences in SF-36 derived mean scores were **only** observed in the PCS and the physical function score (p<0.05, Table 2).

- As expected, all clinician-reported outcomes were significantly different across SALT categories (Data not shown).

Table 1. Demographic Characteristics at enrollment by SALT score class

Characteristic	SALT 1-20 (N=82)	SALT 21-49 (N=27)	SALT 50-100 (N=32)	P-value SALT 1-20 vs SALT 50-100	All participants (N=141)
Adolescent, (12-17 years)					
Mean (SD)	16.8 (0.5)	16.5 (0.7)	17.0 (1)	0.6171	16.7 (0.5)
Median (n)	17.0 (4)	16.5 (2)	17.0 (1)		17.0 (7)
Min - Max	16.0 - 17.0	16.0 - 17.0	17.0 - 17.0		16.0 - 17.0
Adults (>18 years)				0.0037	
Mean (SD)	39.8 (15.7)	43.5 (18.3)	50.7 (15.0)		43.0 (16.5)
Median (n)	43.5 (78)	42.0 (25)	50.0 (31)		45.0 (134)
Min - Max	18.0 - 79.0	18.0 - 76.0	20.0 - 76.0		18.0 - 79.0
Sex, n (%)				0.2639	
Male	35 (42.7%)	9 (33.3%)	10 (31.3%)		54 (38.3%)
Female	47 (57.3%)	18 (66.7%)	22 (68.8%)		87 (61.7%)
Race ethnicity, n (%)				0.3402	
NH White	47 (57.3%)	24 (88.9%)	24 (75.0%)		95 (67.4%)
NH Black	3 (3.7%)	0 (0.0%)	2 (6.3%)		5 (3.5%)
NH Asian	3 (3.7%)	0 (0.0%)	1 (3.1%)		4 (2.8%)
Hispanic/Latino	7 (8.5%)	2 (7.4%)	1 (3.1%)		10 (7.1%)
Other/Not Reported	22 (26.8%)	1 (3.7%)	4 (12.5%)		27 (19.1%)
Region, n (%)				0.3019	
n	82	27	32		141
United States	68 (82.9%)	26 (96.3%)	29 (90.6%)		123 (87.2%)
Canada	14 (17.1%)	1 (3.7%)	3 (9.4%)		18 (12.8%)
Site type, n (%)				0.0045	
n	82	27	32		141
Academic	32 (39.0%)	17 (63.0%)	22 (68.8%)		71 (50.4%)
Community	50 (61.0%)	10 (37.0%)	10 (31.3%)		70 (49.6%)
Insurance: United States, n (%)				0.0407	
n	68	26	29		123
Commercial/Private	57 (83.8%)	22 (84.6%)	25 (86.2%)		104 (84.6%)
Medicaid	9 (13.2%)	1 (3.8%)	0 (0.0%)		10 (8.1%)
Medicare	2 (2.9%)	3 (11.5%)	3 (10.3%)		8 (6.5%)
Uninsured	0 (0.0%)	0 (0.0%)	1 (3.4%)		1 (0.8%)

NA=Not available, sample size may be too small

Table 2. Average SF-36 measures at enrollment by SALT score category

Characteristic	SALT 1-20 (N=82)	SALT 21-49 (N=27)	SALT 50-100 (N=32)	P-value SALT 1-20 vs SALT 50-100	All participants (N=141)
MCS				0.3268	
Mean (SD)	44.2 (11.3)	42.8 (14.5)	46.3 (11.0)		44.4 (11.9)
Median (n)	46.7 (82)	46.6 (27)	48.5 (32)		47.1 (141)
Min - Max	13.1 - 63.2	13.3 - 65.5	16.6 - 61.0		13.1 - 65.5
PCS				0.0119	
Mean (SD)	54.3 (8.7)	52.0 (11.0)	50.9 (8.7)		53.1 (9.3)
Median (n)	56.6 (82)	56.6 (27)	52.4 (32)		55.4 (141)
Min - Max	27.5 - 69.0	21.3 - 64.1	19.8 - 61.4		19.8 - 69.0
Physical Function				0.0071	
Mean (SD)	87.7 (25.0)	89.8 (16.6)	86.2 (19.7)		87.8 (22.4)
Median (n)	100 (82)	100 (27)	90.0 (32)		100 (141)
Min - Max	5.0 - 100	35.0 - 100	0.0 - 100		0.0 - 100
Vitality				0.6485	
Mean (SD)	51.3 (19.6)	51.1 (23.4)	49.8 (21.5)		51.0 (20.7)
Median (n)	55.0 (82)	50.0 (27)	50.0 (32)		55.0 (141)
Min - Max	0.0 - 95.0	0.0 - 90.0	10.0 - 90.0		0.0 - 95.0
Bodily Pain				0.6310	
Mean (SD)	78.9 (25.6)	68.1 (29.1)	77.2 (23.9)		76.4 (26.1)
Median (n)	84.0 (82)	74.0 (27)	84.0 (32)		84.0 (141)
Min - Max	0.0 - 100	12.0 - 100	22.0 - 100		0.0 - 100
General Health				0.2957	
Mean (SD)	68.8 (19.7)	64.2 (25.7)	63.4 (21.3)		66.7 (21.3)
Median (n)	72.0 (82)	72.0 (27)	69.5 (32)		72.0 (141)
Min - Max	10.0 - 100	22.0 - 100	5.0 - 100		5.0 - 100
Physical Role Function				0.1609	
Mean (SD)	86.6 (30.2)	75.0 (39.2)	73.4 (41.1)		81.4 (35.0)
Median (n)	100 (82)	100 (27)	100 (32)		100 (141)
Min - Max	0.0 - 100	0.0 - 100	0.0 - 100		0.0 - 100
Emotional Role Function				0.1366	
Mean (SD)	69.5 (40.0)	67.9 (41.8)	81.3 (33.8)		71.9 (39.1)
Median (n)	100 (82)	100 (27)	100 (32)		100 (141)
Min - Max	0.0 - 100	0.0 - 100	0.0 - 100		0.0 - 100
Social Role Function				0.0751	
Mean (SD)	80.3 (22.9)	71.3 (27.5)	74.6 (19.4)		77.3 (23.3)
Median (n)	87.5 (82)	75.0 (27)	75.0 (32)		75.0 (141)
Min - Max	0.0 - 100	12.5 - 100	25.0 - 100		0.0 - 100
Mental Health				0.3707	
Mean (SD)	68.5 (17.6)	65.9 (22.1)	71.0 (19.0)		68.6 (18.7)
Median (n)	72.0 (82)	68.0 (27)	74.0 (32)		72.0 (141)
Min - Max	16.0 - 100	16.0 - 100	28.0 - 100		16.0 - 100
Utility index SF-6D				0.4489	
Mean (SD)	0.8 (0.1)	0.7 (0.2)	0.7 (0.1)		0.8 (0.1)
Median (n)	0.8 (82)	0.7 (27)	0.7 (32)		0.7 (141)
Min - Max	0.4 - 1.0	0.5 - 1.0	0.6 - 1.0		0.4 - 1.0

- No differences were identified between the SALT 1-20 subgroup and the SALT 50-100 subgroup for any of the following SF-36 derived scores or domains (Table 2):

- MCS
- Vitality
- Bodily pain
- General health
- Physical role function
- Emotional role function
- Social role function
- Mental health
- SF-6D

Table 3. Clinician-Reported Outcomes at enrollment by SALT score class

Clinician-Reported Outcome	SALT 1-20 (N=82)	SALT 21-49 (N=27)	SALT 50-100 (N=32)	P-value SALT 1-20 vs SALT 50-100	All participants (N=141)
CGI-AA				<.0001	
Mean (SD)	1.5 (0.5)	2.3 (0.4)	3.8 (0.4)		2.1 (1.1)
Median (n)	1.0 (82)	2.0 (27)	4.0 (32)		2.0 (141)
Min - Max	1.0 - 3.0	2.0 - 3.0	3.0 - 4.0		1.0 - 4.0
Percent Hair loss				<.0001	
Mean (SD)	10.6 (8.8)	38.5 (15.0)	91.5 (13.4)		34.3 (34.8)
Median (n)	8.5 (82)	35.0 (26)	99.5 (32)		20.0 (140)
Min - Max	1.0 - 40.0	20.0 - 90.0	60.0 - 100		1.0 - 100
Eyebrow				<.0001	
Mean (SD)	0.5 (0.9)	0.8 (0.9)	1.8 (1.3)		0.8 (1.2)
Median (n)	0.0 (82)	0.0 (27)	2.0 (32)		0.0 (141)
Min - Max	0.0 - 3.0	0.0 - 3.0	0.0 - 3.0		0.0 - 3.0
Eyelash				<.0001	
Mean (SD)	0.4 (0.9)	0.9 (1.2)	1.7 (1.3)		0.8 (1.2)
Median (n)	0.0 (82)	0.0 (27)	2.0 (32)		0.0 (141)
Min - Max	0.0 - 3.0	0.0 - 3.0	0.0 - 3.0		0.0 - 3.0
Alopecia totalis / alopecia universalis (AT/AU), n (%)				<.0001	
n	82	27	32		141
AT/AU	4 (4.9%)	1 (3.7%)	23 (71.9%)		28 (19.9%)
Not AT/AU	78 (95.1%)	26 (96.3%)	9 (28.1%)		113 (80.1%)

Table 4. Patient-Reported Outcomes at enrollment by SALT score class

Patient-Reported Outcome	SALT 1-20 (N=82)	SALT 21-49 (N=27)	SALT 50-100 (N=32)	P-value SALT 1-20 vs SALT 50-100	All participants (N=141)
Patient Global Impression of severity (PGIS-AA), n (%)				<.0001	
n	81	27	32		140
1. None	6 (7.4%)	0 (0.0%)	0 (0.0%)		6 (4.3%)
2. Mild	37 (45.7%)	4 (14.8%)	3 (9.4%)		44 (31.4%)
3. Moderate	30 (37.0%)	12 (44.4%)	2 (6.3%)		44 (31.4%)
4. Severe	7 (8.6%)	10 (37.0%)	9 (28.1%)		26 (18.6%)
5. Very Severe	1 (1.2%)	1 (3.7%)	18 (56.3%)		20 (14.3%)
AAPPO-Hair loss				0.0001	
Mean (SD)	3.1 (2.1)	5.2 (3.7)	7.0 (3.4)		4.0 (2.9)
Median (n)	2.5 (80)	4.0 (21)	8.0 (13)		3.0 (114)
Min - Max	0.0 - 10.0	2.0 - 13.0	2.0 - 12.0		0.0 - 13.0
AAPPO-Emotional symptoms				0.0608	
Mean (SD)	8.1 (5.0)	9.2 (4.7)	10.0 (4.0)		8.8 (4.7)
Median (n)	8.0 (81)	9.0 (27)	10.0 (32)		9.0 (140)
Min - Max	0.0 - 16.0	2.0 - 16.0	1.0 - 16.0		0.0 - 16.0
AAPPO-Activity limitation				0.0120	
Mean (SD)	1.3 (2.2)	1.7 (2.7)	2.4 (2.9)		1.6 (2.5)
Median (n)	0.0 (80)	0.0 (27)	1.0 (32)		0.0 (139)
Min - Max	0.0 - 9.0	0.0 - 9.0	0.0 - 9.0		0.0 - 9.0
DLQI: Dermatology Life Quality Index				0.2460	
Mean (SD)	3.2 (3.6)	4.7 (5.6)	3.7 (3.0)		3.6 (3.9)
Median (n)	2.0 (79)	2.0 (26)	3.0 (32)		2.0 (137)
Min - Max	0.0 - 20.0	0.0 - 18.0	0.0 - 10.0		0.0 - 20.0

- Notably, the hair loss and activity limitation domains of the AAPPO demonstrated significant differences between the patient subgroups (p<.0001 and p<.05, respectively, Table 4).

- Mean scores for the generic quality of life instrument, DLQI, were similar across subgroups (p>.2, Table 4)

Conclusion:

- In this real-world cohort, generic QoL instruments, namely the SF-36 and DLQI, did not capture differences in the underlying health-related QoL burden in AA patients with differing disease severity.
- Such differences were clear when HRQoL was measured for AA patients with mild hair loss AAPPO.

References

- Liu, L. Y., et al. (2016). "Health-related quality of life (HRQoL) among patients with alopecia areata (AA): A systematic review." J Am Acad Dermatol 75(4): 806-812.e803.
- Lloyd, A., et al. (2024). "Psychometric Properties of the EQ-5D-5L in Patients with Alopecia Areata." PharmacoEconomics - Open 8(5): 715-725.

Acknowledgements and Disclosures: TARGET-DERM is a study sponsored by Target RWE. Target RWE is a health evidence solutions company headquartered in Durham, NC. The authors would like to thank all the investigators, participants, and research staff associated with TARGET-DERM. *TARGET-DERM Investigators are the participating investigators who provided and cared for study patients; they are authors and non-author contributors. For the complete list, please see ClinicalTrials.gov (NCT03661866).

BNU had research funds paid to institution from: Incyte, Pfizer, and Rapt. He consulted for: Arcutis Biotherapeutics, Bristol Myers Squibb, Castle Biosciences, Fresenius Kabi, Galderma, Pfizer, Prinus Pharmaceuticals, Sanofi, and UCB. NAM has rendered professional services to AbbVie, Arena Pharmaceuticals, Bristol Myers Squibb, Concert Pharmaceuticals, Eli Lilly, La Roche Posay, and Pfizer. SR, CB, and AS are employees of AbbVie and may hold stock options. KDK, BW, and JMC are employees of Target RWE and may hold stock options.