Published in final edited form as:
Br J Dermatol. 2014 March ; 170(3): 672–680. doi:10.1111/bjd.12745.

Patient Satisfaction with Treatments for Moderate-to-Severe Plaque Psoriasis in Clinical Practice

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Abstract

Background—Treatment satisfaction among moderate-to-severe psoriasis patients has not been studied and compared across treatments using a validated instrument.

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Author Contributions: Drs. Callis Duffin and Yeung have 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. *Study concept and design:* Callis Duffin, Yeung, Gelfand, Troxel; *Acquisition of data:* Gelfand, Callis Duffin, Krueger, Robertson, Shin, Van Voorhees; *Analysis and interpretation of data:* Callis Duffin, Yeung, Gelfand, Troxel, Shin; *Drafting of the manuscript:* Callis Duffin, Yeung, Gelfand; Critical revision of the manuscript for important intellectual content: Callis Duffin, Yeung, Gelfand, Krueger, Robertson,Troxel, Shin, Van Voorhees, Takeshita; *Statistical analysis:* Gelfand, Troxel, Shin, Yeung; *Obtained funding:* Gelfand, Callis Duffin, Krueger;*Administrative, technical, or material support:*, Robertson, Shin,; *Study supervision:* Callis Duffin, Gelfand, Krueger.

Potential Financial Conflict of Interest: Dr. Callis Duffin has served on the scientific and marketing advisory boards of Amgen; served as consultant to Amgen, Janssen, Pfizer, Eli Lilly receiving honoraria; received payments for lectures from Abbvie, Amgen, and Janssen; and served as investigator for Abbvie, Amgen, Janssen, Pfizer, Eli Lilly, VBL. Dr. Gelfand served as consultant with Abbvie, Amgen, Celgene, Janssen, Novartis, and Pfizer, receiving honoraria; had grants or has pending grants from Abbvie, Amgen, Genentech, Novartis, and Pfizer; and received payment for CME work related to psoriasis. He also received a donation from Amgen to the University of Pennsylvania to further develop DCERN, which were not used for the current study. Dr. Krueger served as consultant for Abbvie, Amgen, and Janssen; had grants or has pending grants from Abbvie, and Amgen; received payment for lectures and travel-related expenses from Abbvie, Amgen, and Janssen. Dr. Robertson is employed by the National Psoriasis Foundation, which receives unrestricted financial support from companies that makes products used to treat psoriasis, including Amgen, Abbvie, Janssen, Stielfel/GSK, Warner Chilcott, Wyeth, Pfizer, Galderma and PhotoMedix. Dr Van Voorhees served on advisory boards for Amgen, Abbvie, Genentech, Warner Chilcott, Janssen, Leo, Novartis; served as investigators for Amgen, Abbvie, receiving grants; served as consultant for Amgen, receiving honoraria; served as speaker for Amgen, Abbvie, receiving honoraria. All other authors report no relevant financial disclosures.

Objectives—To assess patient-reported satisfaction with systemic and phototherapy treatments for moderate-to-severe psoriasis in clinical practice and to correlate satisfaction with disease severity and quality of life measures.

Methods—Cross-sectional study of 1182 patients with moderate-to-severe psoriasis in the Dermatology Clinical Effectiveness Research Network in the United States. Patients receiving either topical therapies only; monotherapy with oral systemic therapies, biologics, or narrowband ultraviolet B phototherapy; or combination therapy with biologics and methotrexate completed the Treatment Satisfaction Questionnaire for Medication version II.

Results—Median unadjusted Overall Satisfaction scores were highest for patients receiving biologic monotherapies, biologic-methotrexate combinations, or phototherapy (83.3); scores were lowest for those receiving topical therapies only or acitretin (66.7). In fully adjusted models, compared to patients receiving methotrexate monotherapy, those receiving adalimumab, etanercept, ustekinumab, phototherapy, or adalimumab with methotrexate had significantly higher median Overall Satisfaction scores by 7.2 to 8.3 points, while those receiving topical therapies only had significantly lower Overall Satisfaction by 8.9 points. Adjusted Convenience scores were the lowest for patients receiving topical therapies only or infliximab. Modest but significant correlations were found between Overall Satisfaction and Psoriasis Area and Severity Index ($\rho = -0.36$, $p < 0.001$) and Dermatology Life Quality Index (-0.47, $p < 0.001$).

Conclusions—Discernable differences were found in treatment satisfaction among therapies, particularly regarding treatment effectiveness and convenience. Further application of treatment satisfaction measures may inform treatment decisions and guideline development.

Introduction

Psoriasis is a common chronic inflammatory disease of the skin and joints, affecting 2-4% of the population in Western countries.[1,2] Psoriasis, especially more severe disease, is associated with major impairments in physical and psychosocial well-being, as manifested by higher risks of cardiovascular disease, obesity, suicidality, and mortality.[3-7] While numerous treatments for moderate-to-severe psoriasis have been demonstrated to improve clinical disease and health-related quality of life (HRQoL), older studies have suggested that up to 25%-38% of psoriasis patients were dissatisfied with their current treatments.[8,9]

Patient-reported outcomes, such as HRQoL measures, have been increasingly studied in large randomised trials of psoriasis therapies since conventional clinical measures do not fully inform the effects of disease and treatment on patients.[10,11] Commonly used HRQoL measures focus on the impact of the disease on physical, psychological, and social functioning,[6] but not the impact of the treatment experience on these factors. Treatment satisfaction is a distinct patient-reported outcome, defined as the patient's evaluation of the process of receiving treatment and its associated outcomes.[12,13] Treatment satisfaction has been shown to predict adherence, which may affect treatment effectiveness in real-world clinical practice.[12-16] It is an emerging area of research critical for optimizing effective, patient-centred care and integrating patients' perspectives into clinical practice guidelines.[17-19]

Measuring treatment satisfaction has been advocated particularly when treatments offer offsetting efficacy and side-effect profiles, or if treatments of comparable efficacy have different routes of administration, dosing regimen, or other factors that may affect adherence.[12,13] Therefore, treatment satisfaction can be highly informative in comparing therapies for moderate-to-severe psoriasis, a disease for which no clear first-line treatment has been established, treatment characteristics differ widely, and long-term treatment adherence is suboptimal.[17,20,21] However, treatment satisfaction has not been regularly assessed in clinical or research settings; a systematic review revealed that treatment satisfaction was evaluated in only 10 of 678 psoriasis randomised clinical trials.[22] Furthermore, existing studies suffer from heterogeneous *ad hoc* methodologies and no study has directly compared treatment satisfaction across therapies in a rigorous manner using a psychometrically validated instrument.[17,23]

The objectives of this study were to describe and compare treatment satisfaction using a validated instrument in patients receiving treatments for moderate-to-severe plaque psoriasis in the clinical practice setting, and to assess the relationships between treatment satisfaction, objectively measured disease severity, and HRQoL.

Methods

Study Design

This cross-sectional study was conducted within a comparative effectiveness study of treatments for moderate-to-severe psoriasis.[24,25] The study was approved by the University of Pennsylvania and University of Utah Institutional Review Boards, conducted in accordance with the Declaration of Helsinki, and reported in accordance with the STROBE guidelines.[26] Informed consent was obtained from all patients.

Setting

Data were collected by 12 clinicians (10 dermatologists and 2 physician assistants) within the Dermatology Clinical Effectiveness Research Network (DCERN) in the United States from February 2010 to June 2011. DCERN includes two academic medical centres (University of Pennsylvania and University of Utah, each with a separate hospital-based and community-based site) and six private practices in Georgia, Pennsylvania, New York, and Colorado.[24]

Participants

Broad inclusion criteria were used for consecutive patient enrollment at routine follow-up appointments. Participants were established patients with moderate-to-severe psoriasis, defined as current or previous treatment with an oral systemic, biologic, or phototherapy for psoriasis or a documented history of ≥5% body surface area involvement with psoriasis. New patients to the practice became eligible for participation only at their subsequent regularly scheduled visit. Enrolled patients were compensated $10 for completing the study. In the analyses presented herein, of the enrolled patients, we included those who were currently receiving topical therapies only; monotherapy with an oral systemic therapy (methotrexate, cyclosporine, or acitretin), biologic (adalimumab, etanercept, infliximab, or

ustekinumab), or narrowband UVB phototherapy; or combination therapies with methotrexate and one of three biologics (etanercept, adalimumab, or infliximab) for the primary indication of plaque psoriasis. We excluded patients who were receiving less commonly used therapies or whose primary treatment indication was a psoriasis variant (e.g., guttate, palmoplantar, etc.) (Fig.1) where it was not possible to accrue enough cases to make meaningful assessments. This study was descriptive in nature; its sample size was determined by the main comparative effectiveness study as described previously.[24]

Questionnaire

Trained study coordinators gathered data via structured patient interviews with confirmation from patient's medical record and clinician assessments. Detailed data were collected on sociodemographic factors, medical history, psoriasis characteristics, and all current and past psoriasis treatments. Treatment satisfaction and HRQoL instruments were completed by patients, while disease severity was measured by clinicians.

Treatment Satisfaction Questionnaire for Medication

Treatment Satisfaction Questionnaire for Medication, version II (TSQM) is an 11-item generic instrument measuring four dimensions of treatment satisfaction: Effectiveness, Side Effects, Convenience, and Overall Satisfaction.[13-15] Each item is scored on a 5- or 7-point Likert scale, the sum of which is linearised to a subscale score ranging from 0 (extremely dissatisfied) to 100 (extremely satisfied). For example, if a patient reported being “satisfied” in each item of the Overall Satisfaction subscale, the resulting scores would be 66.6; if a patient reported being “very satisfied” in each item, the resulting scores would be 83.3. Construct validity and psychometric properties of the TSQM were validated in a study that included patients with psoriasis.[14] The Overall Satisfaction subscale was designed to reflect each patient's unique set of values balancing the positives of treatment effectiveness with the negatives of side effects and inconvenience. Moreover, the TSQM, particularly the Overall Satisfaction subscale, has been shown to predict both medication persistence and dosing adherence in the outpatient setting.[13,15]

Disease Severity and Quality of Life Measures

Disease severity was assessed using the Psoriasis Area and Severity Index (PASI), the Physician Global Assessment (PGA), and affected body surface area (BSA). Dermatology-specific HRQoL was assessed using the Dermatology Life Quality Index (DLQI). Generic HRQoL measures were assessed using the EuroQol EQ-5D index with U.S. population-based valuation and the EQ-5D Visual Analogue Scale (VAS). Poorer HRQoL is indicated by higher DLQI scores and by lower EQ-5D index or VAS scores. These instruments have been used extensively in psoriasis studies.[11,27]

Statistical Analysis

Data analyses were performed using Stata software, version 12.1 (StataCorp, College Station, Texas, USA). Patient demographics and clinical characteristics were summarised descriptively. TSQM subscales were reported as medians and interquartile ranges (IQR) due to their non-normal distributions. Univariate analyses were conducted with Wilcoxon rank-

sum test, Kruskal-Wallis test, or Spearman's correlation, as appropriate. Statistical significance was defined by $p < 0.05$ on two-tailed tests.

Median regression was used to calculate differences in median TSQM subscale scores among treatments after adjustment for potential confounders. Median regression, a subtype of quantile regression, is appropriate for analysing data with unequal variances and non-normal distributions.[28] Methotrexate was chosen as the reference treatment since it is often considered the standard against which novel therapies are compared. Regression models were fitted separately for the Effectiveness, Convenience, and Overall Satisfaction subscales; the Side Effects subscale was not modelled due to its limited range. Potential confounders with $p < 0.20$ on univariate analyses were initially included, then a backward stepwise elimination approach was employed to obtain parsimonious models with all covariates significant at $p < 0.05$. Sensitivity analyses were conducted by further adjusting for treatment duration and treatment interruption among patients receiving more than topical therapies only.

Relationships between treatment satisfaction, clinical severity, and HRQoL measures were examined using Spearman's correlation. Pairwise correlations were considered significant at $p < 0.001$ to achieve Bonferroni-corrected $\alpha = 0.05$ with multiple comparisons.

Results

Sample characteristics

We collected data on 1755 eligible psoriasis patients (5% of patients who were approached declined to participate). Of these, 1255 patients were receiving eligible treatments for the primary indication of plaque psoriasis. Patients who had missing or improperly completed TSQM were excluded (n=73, 5.8%); they did not significantly differ in age, sex, practice setting, median PASI, or median DLQI from patients with properly completed TSQM. The final analysis included 1182 patients (Fig. 1). Patient demographics and psoriasis characteristics are summarised in Table 1.

Satisfaction with Current Treatments

The unadjusted medians (IQR) of the TSQM Effectiveness, Side Effects, Convenience, and Overall Satisfaction subscales for each treatment group are summarised in Table 2. Significant differences in unadjusted TSQM scores were noted among treatments in all four subscales. Median unadjusted Overall Satisfaction scores were the highest for patients receiving biologic monotherapies, biologic-methotrexate combinations, and phototherapy (83.3), corresponding to “very satisfied” and were the lowest for those receiving topical therapies only or acitretin (66.7), corresponding to “satisfied”.

In the multivariate model of Overall Satisfaction, after fully adjusting for potential confounders, patients receiving adalimumab, etanercept, ustekinumab, narrowband UVB phototherapy, or adalimumab with methotrexate had significantly higher adjusted median scores (7.2 to 8.3 points) than those receiving methotrexate monotherapy (Table 3). In contrast, patients receiving topical therapies only had a significantly lower median score (-8.9 points). Overall Satisfaction was not independently associated with any

sociodemographic variables other than individual recruitment sites ($p < 0.001$); sensitivity analysis did not reveal a significant difference in Overall Satisfaction between academic and private practices (data not shown). Overall Satisfaction was not associated with the number of co-morbid diseases, family history of psoriasis, self-rated worst psoriasis severity, or the number of previous psoriasis treatments. Longer duration of psoriasis diagnosis ($p = 0.03$) and fewer days of topical therapy use ($p < 0.001$) were each associated with higher Overall Satisfaction (data not shown).

For the Effectiveness subscale, patients receiving adalimumab, etanercept, ustekinumab, narrowband UVB phototherapy, and adalimumab with methotrexate had significantly higher median Effectiveness scores than those receiving methotrexate monotherapy (8.3 to 11.3 points), while patients receiving topical therapies only had a significantly lower score (-12.5 points). For the Convenience subscale, patients receiving topical therapies only, infliximab, or narrowband UVB phototherapy had lower median Convenience scores than those receiving methotrexate monotherapy (-13.5, -11.1, and -7.4 points, respectively).

Since longer treatment duration and fewer treatment interruptions of the non-topical treatments were associated with higher Overall Satisfaction in univariate analyses (each $p < 0.01$), we conducted sensitivity analyses by further adjusting each model for these two variables among patients receiving treatments other than topical therapies only. The resulting differences in the median TSQM subscale scores remained largely unchanged (data not shown).

Correlation with Disease Severity and Quality of Life

Statistically significant correlations were found between treatment satisfaction and objective disease severity and treatment satisfaction and HRQoL (Table 4a). The Effectiveness and Overall Satisfaction subscales showed moderate correlations with PASI ($\rho = -0.40$ and -0.36, respectively), BSA (-0.39 and -0.35) and DLQI total score (-0.50, and -0.47). The Side Effects and Convenience subscales showed weaker correlations with DLQI. Correlations between TSQM subscales and DLQI domains were modest, with generally stronger correlations between Effectiveness and Overall Satisfaction and various DLQI domains than Convenience and Side Effects (Table 4b).

Discussion

This study examined patient satisfaction with treatments for moderate-to-severe psoriasis using a validated questionnaire in a large cross section of patients under routine clinical care in U.S. academic and private practices. The majority of patients reported relatively high levels of Overall Satisfaction with their current treatments. Although our cross-sectional design may be vulnerable to the clinical drift phenomenon, wherein patients with higher levels of satisfaction were more likely to persist with treatment and were thus oversampled, our results are consistent with several studies of treatment satisfaction with biologic agents in psoriasis patients,[23,29-31] including one using the TSQM,[32] that revealed high satisfaction levels. These results differed from older studies, many of which did not include patients receiving biologic agents.[8,9,17,33]

Higher median Overall Satisfaction scores were seen with adalimumab, etanercept, ustekinumab, narrowband UVB phototherapy, and adalimumab with methotrexate than with methotrexate monotherapy. These results are consistent with a recent survey of Dutch psoriasis patients that suggested higher satisfaction with biologics than with other treatments.[23] Differences among treatments in the Overall Satisfaction subscale largely paralleled those in the Effectiveness subscale, confirming the strong correlation previously demonstrated between the two.[15] These results complement findings from our previous comparative effectiveness studies focusing on physician-reported measures, in which these five treatments were associated with significantly higher rates of objective skin clearance than methotrexate monotherapy.[24,25] The lowest median Overall Satisfaction scores were reported by patients receiving topical therapies only. These data highlight patient perceptions of the relative inefficacy and inconvenience of topical therapies, which may hinder adherence level in patients with moderate-to-severe psoriasis.[29,34,35]

Satisfaction with treatment convenience was generally high across treatments, with the lowest median scores seen in those patients receiving topical therapy only, narrowband UVB phototherapy and infliximab. Treatment inconvenience has been shown to be an important determinant of the relatively poor persistence of narrowband UVB phototherapy,[21] while its impact on infliximab persistence has been less well-defined than factors such as treatment efficacy and side effects.[36,37] Nonetheless, median Overall Satisfaction scores for these therapies in our analysis were still relatively high, suggesting that patient satisfaction with a treatment's effectiveness and side-effect profile may outweigh its inconvenience among patients who persist on therapy.

Consistent with prior studies, we observed that higher Overall Satisfaction scores were associated with longer treatment duration and duration of psoriasis diagnosis, but not with most demographic variables.[14,38] Notably, greater frequency of topical medication use was found to be independently associated with lower Overall Satisfaction. Frequent topical therapy use was previously associated with lower objective skin clearance among patients receiving systemic therapy or phototherapy;[24] this may reflect the fact that the systemic agent or phototherapy alone was insufficiently effective for the patient and adjuvant topical therapies were required for difficult-to-treat lesions.[39,40] Moreover, topical therapies themselves have been associated with poor treatment satisfaction, attributed to their relative lack of efficacy and messiness.[14,29,35] These results contrast with a recent trial showing that the short-term use of topical clobetasol proprionate with etanercept was associated with higher treatment satisfaction, as measured by a single Likert scale, compared to etanercept monotherapy.[41] Our data suggest that the frequent use of topical medications, though prevalent and generally considered safe and efficacious, may not directly translate to higher treatment satisfaction in real-world clinical practice.

The TSQM Overall Satisfaction and Effectiveness subscales demonstrated significant but modest correlations with disease severity and HRQoL measures. Notably, the DLQI “treatment” domain – consisting of the single item of “Over the last week, how much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time?”[42] – was also modestly correlated with TSQM subscales. These modest correlations suggest that previous HRQoL measures may not fully capture the pros and cons

of treatments from patients' perspective and emphasize the need to assess treatment satisfaction comprehensively as a distinct construct.

The main strength of this study stems from the use of a validated measure of treatment satisfaction with demonstrated predictive value for treatment adherence, which adds important patient-reported data to inform real-world effectiveness of psoriasis treatments.[15] The TSQM captures the most important reasons for intentional treatment non-adherence in psoriasis, including dissatisfaction with medication efficacy relative to expectations, side effects, and inconvenience.[34] We employed broad inclusion criteria in routine clinical practice, large sample size, high participation rate, and statistical adjustment for confounders to maximize the validity of our results. However, treatment assignment was not randomised and potential sources of error such as selection bias, clinical drift, and residual confounding cannot be excluded. Our patients were mostly Caucasian and were recruited from clinical practices that regularly care for patients with psoriasis, which may impact the generalizability of our findings. Additionally, the TSQM does not measure patient satisfaction with cost, which likely influences overall satisfaction with treatment, and this is a limitation of our study. As a generic instrument, the TSQM may not fully discriminate satisfaction regarding treatment aspects specific to psoriasis treatments; for example, psoriasis treatment side effects may not be adequately captured given the known ceiling effect of the Side Effects subscale.[15] The utility of TSQM in psoriasis may be further defined by anchoring scores to clinically meaningful outcomes, such that clinicians can better incorporate patients' evaluation of treatment effects to formulate patient-centred therapeutic management decisions.

The decision to select therapy is often complex and dependent on numerous variables including baseline health status, disease severity, possible side effects, predicted efficacy, cost, socioeconomic status, health care access, mode of drug delivery, among others. The decision to change or continue therapy is equally complex. To be consistent with the demand for patient-centred models of health care, assessing treatment satisfaction may inform treatment decisions that ultimately promote treatment adherence and success. Our study shows that the TSQM can discern differences in satisfaction among commonly used therapies for moderate-to-severe psoriasis. Further evaluation of psoriasis treatment satisfaction, using TSQM or a psoriasis-specific instrument, in longitudinal comparative-effectiveness studies is needed.

Acknowledgments

We would like to acknowledge DCERN investigators including Drs. Jamie Weisman, Stephen M. Schleicher, Robert E. Kalb, Brian R. Sperber, Michael B. Steierstofer, Bruce A. Brod, and Joy Wan for their contribution to data collection.

Funding / Support:

This study was supported by grants 1KM1CA156723 (K.C.D.), T32-AR07465 (H.Y., D.B.S.), and T32-GM075766-6 (J.T.) from the NIH; National Psoriasis Foundation Fellowship Award (J.T.); RC1-AR058204 and K24-AR064310 from the NIAMS (J.M.G.), and an unrestricted grant from Eli Lilly.

Role of the Sponsors: The sponsors had no role in the design and conduct of the study; in the collection, analysis, and interpretation of data; or in the preparation, review, or approval of the manuscript.

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Bulleted Statements

What's already known about this topic?

- Patients' satisfaction with their treatments has important implications in medical decision-making, treatment adherence and treatment success in real-world clinical practice.
- Earlier research suggested dissatisfaction with current treatments among patients with moderate-to-severe psoriasis.

What does this study add?

- This study established benchmarks for comparing treatment satisfaction with current therapy among patients with moderate-to-severe psoriasis using a validated instrument under real-world conditions.
- Discernable differences were found in treatment satisfaction among treatments, particularly regarding treatment effectiveness and convenience.

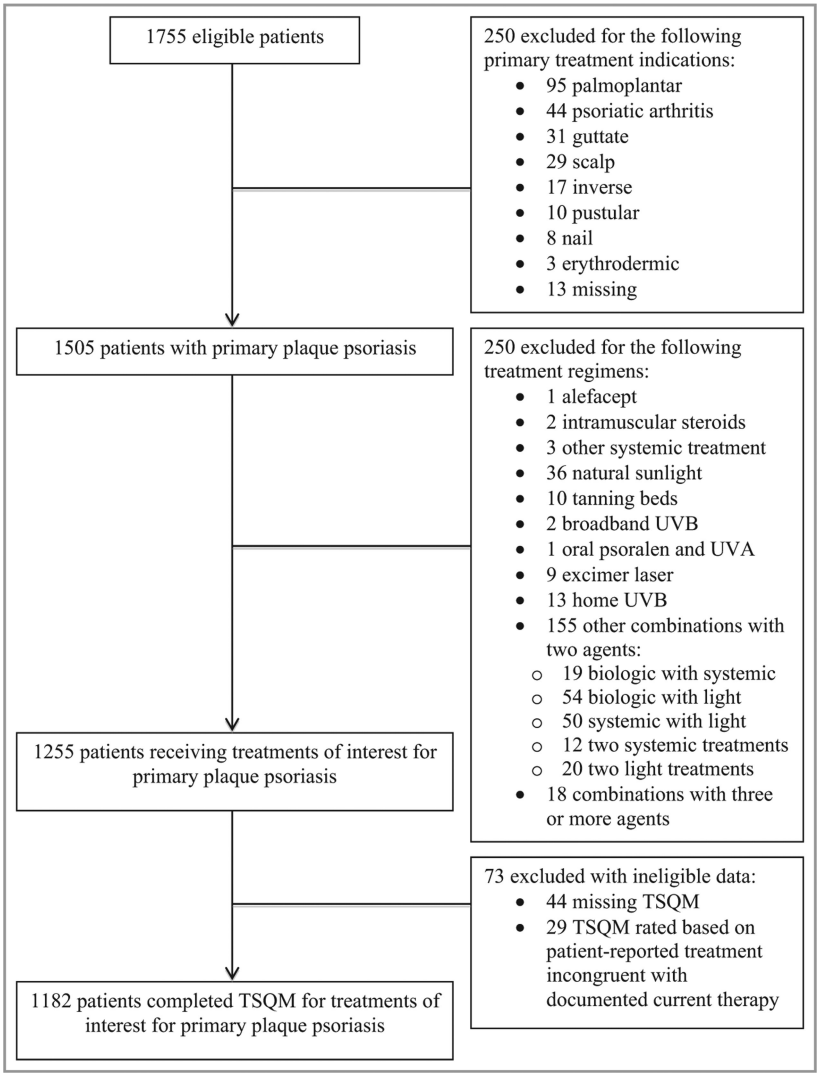

Fig 1.

Flow diagram of patient inclusion. UV, ultraviolet; TSQM, Treatment Satisfaction Questionnaire for Medication, version II.

Table 1

Baseline patient and psoriasis characteristics (N = 1,182).

Characteristic	N (%)
Age, median (IQR), y	50 (38-61)
Female sex	571 (48.3)
Practice setting of dermatologist	
Academic	695 (58.8)
Private	487 (41.2)
Annual household income	
< $25,000	143 (12.1)
$25,000 - $49,999	199 (16.8)
$50,000 - $74,999	183 (15.5)
$75,000 - $99,999	153 (12.9)
≥ $100,000	271 (22.9)
Do not know	55 (4.7)
Prefer not to answer	176 (14.9)
Primary insurance coverage	
Private	893 (75.6)
Medicare	182 (15.4)
Medicaid	37 (3.1)
None	36 (3.1)
Do not know	33 (2.8)
Race	
White/Caucasian	1014 (85.8)
Black/African American	52 (4.4)
Other	116 (9.8)
Ethnicity	
Hispanic/Latino	59 (5.0)
Not Hispanic/Latino	1,118 (94.6)
Smoking status	
Current	211 (17.9)
Past	396 (33.5)
Never	574 (48.6)
Current drinking status	
Heavy[a]	64 (5.4)
Moderate	740 (62.6)
None in last year	376 (31.8)
Ever had a year-long period of heavy drinking in their life[a]	298 (25.2)
Body mass index (BMI) (kg/m2), median (IQR)	28.8 (25.1-33.5)
Total number of comorbidities[b], median (IQR)	2 (1-4)
Age of psoriasis onset, median (IQR), y	25 (16-40)

Characteristic	N (%)
Duration of psoriasis, median (IQR), y	19 (8-30)
Modifying factors (more than 1 may apply)	
Psoriasis improves in sunlight	714 (60.4)
Psoriasis worsens in sunlight	63 (5.3)
Psoriasis sometimes goes away without therapy	153 (12.9)
Family history of psoriasis	
Yes	479 (40.5)
No	599 (50.7)
Don't know	103 (8.7)
Topical medication use in the past week, median (IQR), days	3 (0-7)
Psoriatic arthritis diagnosed by a physician	287 (24.3)
No. of previous biologic, systemic, or phototherapy treatments, median (IQR)	1 (0-2)
Previous type(s) of psoriasis treatment used[c]	
Biologic	423 (35.8)
Oral systemic therapy	503 (42.6)
Phototherapy	527 (44.6)
None	298 (25.2)

IQR, interquartile range; SD, standard deviation

Note: Percentages may not total 100% due to rounding and/or missing data, which did not exceed 0.4% for any particular characteristic.

[a] More than 2 drinks per day for men and more than 1 drink per day for women

[b] Including cardiovascular, lung, infection, gastrointestinal, renal, endocrine, musculoskeletal, psychiatric, neurologic, malignant or autoimmune diseases

[c] Percentages do not total 100% because some patients may have used more than one previous treatment

Table 2

Current psoriasis treatments and treatment satisfaction subscale scores.

	Current treatment					
TSQM subscales, median (IQR)	**Topical only (N = 295)**	**Methotrexate (N = 164)**	**Cyclosporine (N = 18)**	**Acitretin (N = 36)**	**Adalimumab (N = 149)**	**Etanercept (N = 186)**
Effectiveness	50 (41.7-66.7)	66.7 (50-83.3)	66.7 (50-83.3)	66.7 (50-83.3)	83.3 (66.7-100)	83.3 (66.7-100)
Side Effects	100 (100-100)	100 (100-100)	100 (91.7-100)	100 (91.7-100)	100 (100-100)	100 (100-100)
Convenience	66.7 (50-77.8)	83.3 (66.7-88.9)	66.7 (61.1-83.3)	77.8 (66.7-91.7)	77.8 (66.7-83.3)	77.8 (66.7-83.3)
Overall Satisfaction	66.7 (50-75)	75 (66.7-83.3)	79.2 (50-91.7)	66.7 (50-83.3)	83.3 (66.7-91.7)	83.3 (66.7-91.7)

	Current treatment						
TSQM subscales, median (IQR)	**Infliximab (N = 42)**	**Ustekinumab (N = 71)**	**NB UVB (N = 118)**	**MTX-ADA (N = 48)**	**MTX-ETA (N = 22)**	**MTX-INF (N = 33)**	***P* value[a]**
Effectiveness	83.3 (66.7-100)	83.3 (50-100)	75 (58.3-83.3)	83.3 (66.7-95.8)	70.8 (58.3-83.3)	83.3 (66.7-91.7)	< 0.001
Side Effects	100 (100-100)	100 (100-100)	100 (100-100)	100 (87.5-100)	100 (91.7-100)	100 (91.7-100)	0.001
Convenience	66.7 (50-88.9)	83.3 (66.7-94.4)	72.2 (61.1-83.3)	83.3 (66.7-83.3)	72.2 (66.7-83.3)	72.2 (66.7-83.3)	< 0.001
Overall Satisfaction	83.3 (66.7-100)	83.3 (66.7-100)	83.3 (66.7-91.7)	83.3 (75-100)	83.3 (75-83.3)	83.3 (66.7-91.7)	< 0.001

TSQM, Treatment Satisfaction Questionnaire for Medication version II; NB UVB, narrowband ultraviolet B phototherapy; MTX, methotrexate; ADA, adalimumab; ETA, etanercept; INF, infliximab; IQR, interquartile range

[a]Kruskal-Wallis test

Table 3

Differences in adjusted median treatment satisfaction subscale scores compared to methotrexate monotherapy.

	Current treatment, β (95% CI)					
TSQM subscales	**Topical only**	**Methotrexate**	**Cyclosporine**	**Acitretin**	**Adalimumab**	**Etanercept**
Effectiveness[a]	−12.5 (−17.3 – −7.7)	[ref.]	−2.4 (−13.8 – 9.0)	−7.7 (−16.4 – 0.9)	11.3 (6.0 – 16.6)	11.3 (6.2 – 16.4)
Convenience[b]	−13.5 (−17.7 – −9.3)	[ref.]	−2.6 (−12.7 – 7.4)	−5.8 (−13.3 – 1.7)	−2.4 (−7.1 – 2.3)	−1.3 (−5.8 – 3.1)
Overall Satisfaction[c]	−8.9 (−13.0 – −4.8)	[ref.]	7.2 (−2.6 – 17.0)	−7.2 (−14.6 – 0.2)	7.8 (3.2 – 12.3)	7.8 (3.4 – 12.1)

	Current treatment, β (95% CI)					
TSQM subscales	**Infliximab**	**Ustekinumab**	**NB UVB**	**MTX-ADA**	**MTX-ETA**	**MTX-INF**
Effectiveness[a]	7.1 (−0.9 – 15.2)	8.9 (2.4 – 15.5)	8.3 (2.6 – 14.1)	8.9 (1.4 – 16.4)	2.4 (−8.0 – 12.8)	4.8 (−4.0 – 13.5)
Convenience[b]	−11.1 (−18.2 – −4.0)	2.6 (−3.1 – 8.4)	−7.4 (−12.4 – −2.4)	−2.1 (−8.7 – 4.5)	−6.9 (−16.0 – 2.3)	−6.9 (−14.6 – 0.8)
Overall Satisfaction[c]	4.4 (−2.5 – 11.4)	7.8 (2.1 – 13.4)	7.2 (2.3 – 12.1)	8.3 (1.9 – 14.8)	6.1 (−2.8 – 15.0)	3.9 (−3.6 – 11.4)

TSQM, Treatment Satisfaction Questionnaire for Medication version II; NB UVB, narrowband ultraviolet B phototherapy; β, regression coefficient; CI, confidence interval; ref., reference; MTX, methotrexate; ADA, adalimumab; ETA, etanercept; INF, infliximab

Note: Regression modelling was not performed on the Side Effect subscale due to the low prevalence of dissatisfaction related to side effects.

[a] Adjusted for recruitment site, duration of psoriasis diagnosis (categorised as <10, 10-19, 20-29, and ≥30 years), and frequency of topical treatment use (number of days in the past week).

[b] Adjusted for recruitment site, age (categorised as 18-34, 35-44, 45-54, 55-64, and >65 years old), and frequency of topical treatment use.

[c] Adjusted for recruitment site, duration category of psoriasis diagnosis, and frequency of topical treatment use.

Table 4a

Correlations between treatment satisfaction, clinical severity, and quality of life measures

	Disease Severity			Quality of Life		
	PASI	**PGA**	**BSA**	**DLQI**	**EQ-5D Index**	**EQ-5D VAS**
Effectiveness	−0.40*	−0.34*	−0.39*	−0.50*	0.20*	0.25*
Side Effects	−0.08	−0.03	−0.10	−0.23*	0.25*	0.19*
Convenience	−0.22*	−0.19*	−0.21*	−0.36*	0.17*	0.21*
Overall Satisfaction	−0.36*	−0.31*	−0.35*	−0.47*	0.18*	0.22*

Table 4b

Correlations between treatment satisfaction and DLQI domains

	DLQI Domains					
	Symptoms & Feelings	**Daily Activities**	**Leisure**	**Work & School**	**Personal Relationships**	**Treatment**
Effectiveness	−0.50*	−0.39*	−0.31*	−0.22*	−0.29*	−0.33*
Side Effects	−0.20*	−0.20*	−0.22*	−0.18*	−0.22*	−0.14*
Convenience	−0.36*	−0.26*	−0.20*	−0.14*	−0.21*	−0.29*
Overall Satisfaction	−0.47*	−0.36*	−0.30*	−0.18*	−0.29*	−0.32*

PASI, Psoriasis Area and Severity Index; PGA, Physician Global Assessment; BSA, Body surface area; DLQI, Dermatology Life Quality Index; VAS, Visual Analogue Scale

Note

* $p < .001$