Treatment patterns, healthcare resource utilization, and costs associated with psoriatic arthritis among Humana Commercial and Medicare member populations

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Introduction

- Psoriatic arthritis (PsA) is a chronic inflammatory disease that reduces quality of life and imposes a substantial economic burden.[1]
- Treatment options for PsA have increased over the past decade with the development of biologic DMARD therapies, as reflected in US and European guidelines for PsA management.[2,3]
- A previous study of MarketScan databases of US commercial and Medicare Advantage with Prescription Drug (MAPD) plan members reported that 61% of patients with PsA are treated with biologic DMARDs, including tumor necrosis factor inhibitors (TNFi), and 52% are treated with conventional synthetic DMARDs (csDMARDs).[4]
- Despite advances in treatment options for PsA, many patients remain untreated or under-treated.[5]

Objectives

- The objective of this study was to examine treatment patterns, healthcare resource utilization (HCRU), and costs in patients with PsA using a large, US, national healthcare claims database:
  - HCRU and costs were compared between patients who received TNFi and those who did not receive TNFi.

Methods

- This retrospective cohort study evaluated data in patients with ≥2 diagnoses of PsA (ICD-9: 696.0) ≥30 days apart (3,108 PsA cases out of 2,147,529 eligible members).
- Index date was designated as the first PsA diagnosis between January 1, 2008 and December 31, 2013.
- Patients were aged from 18–89 years on index date and had continuous enrollment in a fully-insured commercial or MAPD plan for ≥12 months pre-index and ≥12 months post-index.
- Patients with a history of ≥2 claims ≥30 days apart with a primary or secondary diagnosis of Crohn's disease, ulcerative colitis, or rheumatoid arthritis (RA) were not included.
- PsA-related pharmacotherapy (DMARDs, TNFi, nonsteroidal anti-inflammatory drugs [NSAIDs], and corticosteroids) were evaluated.
- TNFi-treated patients were defined as those without pre-index TNFi treatment who had ≥28 days' supply (pharmacy claims) or expected days of benefit (medical claims) of TNFi treatment within 6 months post-index. All others without pre-index TNFi use were considered as non-TNFi users:
  - TNFi monotherapy was defined as TNFi treatment with no overlapping (<50% of days or <28 days') possession of non-TNFi DMARDs. TNFi combination therapy was defined as TNFi treatment with overlapping (≥50% of days or ≥28 days') possession of non-TNFi DMARDs
  - TNFi discontinuation was defined as a gap of >60 days with no days' supply or expected days of benefit of TNFi treatment
  - TNFi switch was defined as evidence of the initiation of a different TNFi prior to discontinuation of the index TNFi.
- Tests conducted among members with PsA included CT scan, MRI scan, ultrasound scan, X-rays, and laboratory tests for C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), HLA-B27, and lipids.
- All-cause and PsA-related HCRU (inpatient hospitalizations, emergency room [ER] visits, and outpatient visits) were evaluated in all patients without pre-index TNFi use.
- All-cause and PsA-related costs and PsA-related outpatient visits for TNFi- and non-TNFi-treated patients without pre-index TNFi use were evaluated using generalized linear models adjusted for age, gender, Elixhauser Comorbidity Index (ECI) score (a risk score associated with hospital stays and mortality, ranging from 0–31 based on 31 equally weighted diagnostic categories), Rx-Risk-V score (a risk score ranging from 0–45 based on the number of distinct drug classes using Generic Product Identifier [GPI]) and pre-index utilization or costs:
  - All costs were adjusted to 2014 US dollars using the Medical Consumer Price Index.

Results

Patients

- The study included 1,011 patients; 60% (n=610) of these were MAPD plan members (Table 1):
  - The mean (standard deviation [SD]) age of all patients was 58.2 (14.4) years
  - 48% (n=484) of all patients were female and 64% (n=650) were located in the Southern States.

Table 1. Patient demographics

	MAPD (N=610)	Commercial (N=401)	All (N=1011)
Age (years), mean (SD)	65.2 (10.6)	46.6 (10.6)	58.2 (14.4)
18–50, n (%)	70 (11.5)	245 (61.0)	315 (31.2)
51–89, n (%)	540 (88.5)	156 (38.9%)	696 (68.8)
Female, n (%)	322 (52.8)	162 (40.4)	484 (47.9)
Geographic region, n (%)			
Northeast	17 (2.8)	0 (0.0)	17 (1.7)
Midwest	146 (23.9)	118 (29.4)	264 (26.1)
South	388 (63.6)	262 (65.3)	650 (64.3)
West	59 (9.7)	21 (5.2)	80 (7.9)

MAPD, Medicare Advantage with Prescription Drug plan; N, number of patients; SD, standard deviation

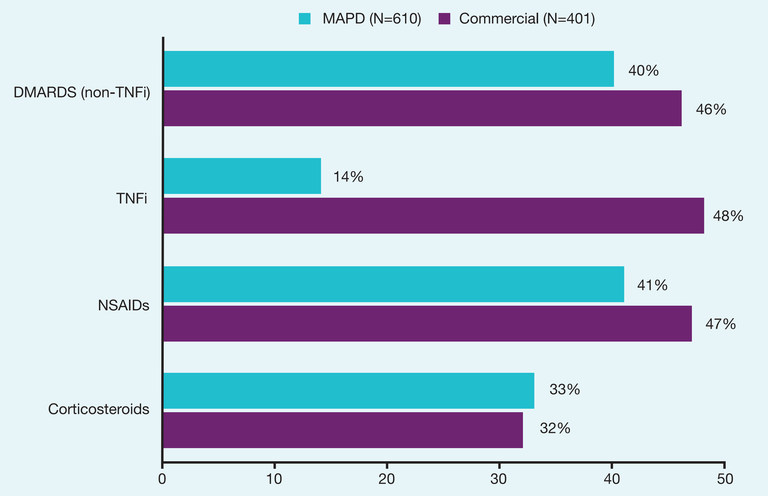
Comorbidities

- At baseline, the mean (SD) ECI score was 5.9 (3.7) for MAPD plan members compared with 1.8 (2.1) for commercial plan members:
  - The mean (SD) Rx-Risk-V Score for MAPD plan members was 5.7 (3.2) compared with 3.5 (2.7) for commercial plan members.
- The most common comorbidities amongst MAPD plan members were hypertension (68%; n=412/610), diabetes (uncomplicated) (32%; n=193/610), chronic pulmonary disease (23%; n=142/610), and atherosclerosis (22%; n=131/610) compared with hypertension (31%; n=125/401), RA/collagen vascular diseases (12%; n=46/401), fibromyalgia (9%; n=36/401), and diabetes (uncomplicated) (9%; n=35/401) for patients with a commercial plan.

Treatments

- During the 12-month post-index period, 76% (n=465) of MAPD plan members and 89% (n=335) of commercial plan members received PsA-related pharmacotherapy.
- 40% (n=245) of MAPD plan members received DMARDs (non-TNFi), 14% (n=84) received TNFi, 41% (n=250) received NSAIDs, and 33% (n=202) received corticosteroids compared with 46% (n=185), 48% (n=194), 47% (n=189), and 32% (n=129), respectively, of commercial plan members (Figure 1).
- Common laboratory tests amongst MAPD members in the post-index period included lipids (74%; n=451/610), X-rays (59%; n=360/610), ESR rate (39%; n=235/610), and CRP rate (33%; n=201/610) compared with 48% (192/401), 54% (217/401), 55% (219/401), and 49% (198/401), respectively, of commercial plan members.

Figure 1. Treatments received by MAPD and commercial plan members for their PsA during the 12-month post-index period



MAPD, Medicare Advantage with Prescription Drug plan; N, number of patients; NSAIDs, nonsteroidal anti-inflammatory drugs; PsA, psoriatic arthritis; TNFi, tumor necrosis factor inhibitor

TNFi treatment patterns

- 29 MAPD plan members and 73 commercial plan members initiated TNFi treatment during the 12-month post-index period:
  - Of those initiating TNFi treatment, 79% (n=23/29) of MAPD plan members used monotherapy compared with 78% (n=57/73) of commercial plan members
  - The mean (SD) time to initial TNFi treatment after index diagnosis was 77 (50) days for MAPD plan members and 63 (42) days for commercial plan members
  - 52% (n=15/29) of MAPD plan members discontinued TNFi treatment within the first 12 months and 74% (n=17/23) discontinued within 24 months versus 33% (n=24/73) and 62% (n=24/39) of commercial plan members, respectively.

Healthcare resource utilization

- HCRU was observed for all patients without pre-index TNFi utilization.
- All-cause HCRU (inpatient hospitalizations, ER visits, outpatient visits) was numerically higher for MAPD plan members compared with commercial plan members during the first 12 and 24 months (Table 2).

Table 2. HCRU of MAPD and commercial plan members with PsA within the first 12 and 24 months post-index

	12 months		24 months	
	MAPD N=555	Commercial N=296	MAPD N=418	Commercial N=185
All-cause HCRU				
Inpatient hospitalizations, mean (SD)	0.3 (0.8)	0.1 (0.6)	0.5 (1.0)	0.2 (0.6)
Emergency room visits, mean (SD)	0.5 (1.0)	0.2 (0.7)	1.0 (2.1)	0.3 (0.8)
Outpatient visits, mean (SD)	22.4 (17.3)	15.2 (14.7)	41.6 (30.5)	26.4 (24.1)
PsA-related HCRU				
Inpatient hospitalizations, mean (SD)	0.0 (0.1)	0.0 (0.0)	0.0 (0.1)	0.0 (0.1)
Emergency room visits, mean (SD)	0.0 (0.2)	0.0 (0.2)	0.1 (0.5)	0.0 (0.3)
Outpatient visits, mean (SD)	4.0 (4.0)	4.4 (3.2)	6.1 (8.0)	6.8 (5.3)

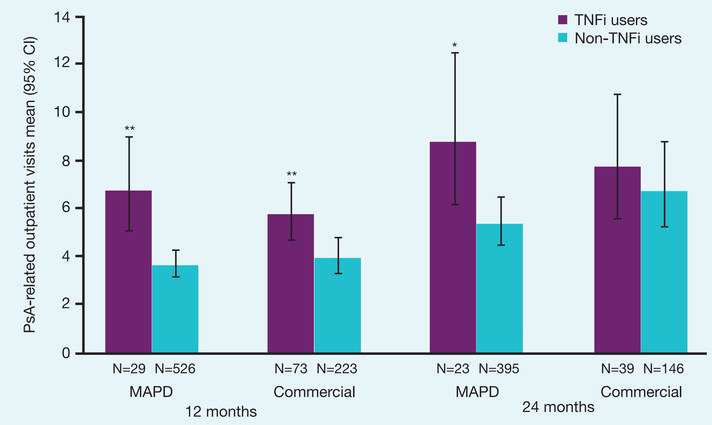
HCRU, healthcare resource utilization; MAPD, Medicare Advantage with Prescription Drug plan; PsA, psoriatic arthritis; SD, standard deviation

- Most PsA-related HCRU in the first 12 months involved outpatient visits. There were no PsA-related inpatient hospitalizations and ER visits.
- PsA-related outpatient visits were greater for MAPD and commercial plan members treated with TNFi compared with those without TNFi treatment within the first 12 and 24 months (Figure 2).

Costs

- Costs were observed for all patients without pre-index TNFi use.
- All-cause mean pharmacy costs were significantly higher in TNFi users compared with non-TNFi users for both MAPD and commercial plan members during the first 12 months (both $p<0.0001$; Table 3a).
- Within the first 12 months, total PsA-related costs, medical costs, and pharmacy costs were significantly higher in TNFi users compared with non-TNFi users for both MAPD and commercial plan members (all $p<0.0001$; Table 3b).

Figure 2. Covariate-adjusted PsA-related outpatient visits in TNFi and non-TNFi users with MAPD and commercial plans in the first 12 and 24 months post-index



*p<0.05; **p<0.0001 vs non-TNFi users
Adjusted for the following covariates: age, gender, Elixhauser Comorbidity Index score, Rx-Risk-V score, and pre-index total costs
CI, confidence interval; MAPD, Medicare Advantage with Prescription Drug plan; PsA, psoriatic arthritis; TNFi, tumor necrosis factor inhibitor

Table 3a. All-cause healthcare costs for TNFi users and non-TNFi users amongst PsA patients with MAPD and commercial plans in the first 12 months post-index

	MAPD		Commercial	
	TNFi users (N= 29)	Non-TNFi users (N=526)	TNFi users (N=73)	Non-TNFi users (N=223)
Total costs, US $ (95% CI)[a]	53,140* (33,536, 84,482)	27,980 (19,410, 48,276)	48,605 (33,412, 71,846)	28,542** (18,164, 48,214)
Medical costs, US $ (95% CI)[a]	15,253 (8,908, 26,246)	11,711 (7,879, 21,835)	9,595 (6,013, 15,798)	15,674 (8,179, 34,334)
Pharmacy costs, US $ (95% CI)[a]	37,998** (24,705, 58,575)	16,316 (11,599, 26,061)	38,015** (26,561, 55,075)	15,631 (10,327, 25,153)

*p<0.05; **p<0.0001 vs non-TNFi users
[a]Adjusted for the following covariates: age, gender, Elixhauser Comorbidity Index score, Rx-Risk-V score, and pre-index total costs
CI, confidence interval; MAPD, Medicare Advantage with Prescription Drug plan; N, number of patients; PsA, psoriatic arthritis; TNFi, tumor necrosis factor inhibitor

Table 3b. PsA-related healthcare costs for TNFi users and non-TNFi users amongst PsA patients with MAPD and commercial plans in the first 12 months post-index

	MAPD		Commercial	
	TNFi users (N= 29)	Non-TNFi users (N=526)	TNFi users (N=73)	Non-TNFi users (N=223)
Total costs, US $ (95% CI)[a]	24,508** (13,612, 44,303)	1,734 (1,236, 2,633)	28,667** (19,886, 41,727)	2,480 (1,788, 3,598)
Medical costs US $ (95% CI)[a]	5,421** (3,107, 9,487)	965 (718, 1,340)	3,492** (2,321, 5,323)	1,123 (791, 1,659)
Pharmacy costs US $ (95% CI)[a]	23,133** (11,039, 48,893)	994 (638, 1,662)	26,550** (15,845, 45,326)	1,698 (1,025, 3,295)

**p<0.0001 vs non-TNFi users
[a]Adjusted for the following covariates: age, gender, Elixhauser comorbidity score, Rx-Risk-V score, and pre-index total costs
CI, confidence interval; MAPD, Medicare Advantage with Prescription Drug; N, number of patients; PsA, psoriatic arthritis; TNFi, tumor necrosis factor inhibitor

Summary

- The majority of patients with PsA were treated with DMARDs, NSAIDs, and/or corticosteroids:
  - TNFi use was higher among members with a commercial plan than those with an MAPD plan.
- The majority (52%) of patients with an MAPD plan and many (33%) with a commercial plan discontinued TNFi treatment in the first 12 months post-index.
- PsA-related outpatient visits were greater for TNFi users versus non-TNFi users in the first 12 months post-index.
- PsA-related costs were significantly higher for TNFi users compared with non-TNFi users.

Limitations

- There were a greater number of MAPD plan members compared with commercial plan members and this may have resulted in the treatment differences identified.
- Patients were predominantly based in the Southern and Midwestern States with limited membership in the Northeastern or Western States.
- The use of over-the-counter drugs was not accounted for in this study and this could have contributed to the low numbers of patients receiving pharmacological treatment.
- Low numbers of patients with an MAPD plan received TNFi treatment.
- The clinical impact of TNFi treatment could not be evaluated using claims data.

Conclusion

- **In comparison with a published study of TNFi treatment in patients with PsA using the MarketScan database,[4] our findings suggest there may be gaps in the treatment of PsA and that TNFi treatment may be under-utilized, especially for MAPD members.**

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