# Trends in Prevalence of Psychiatric Comorbidities among Patients with Moderate to Severe Psoriasis

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# Background & Objectives

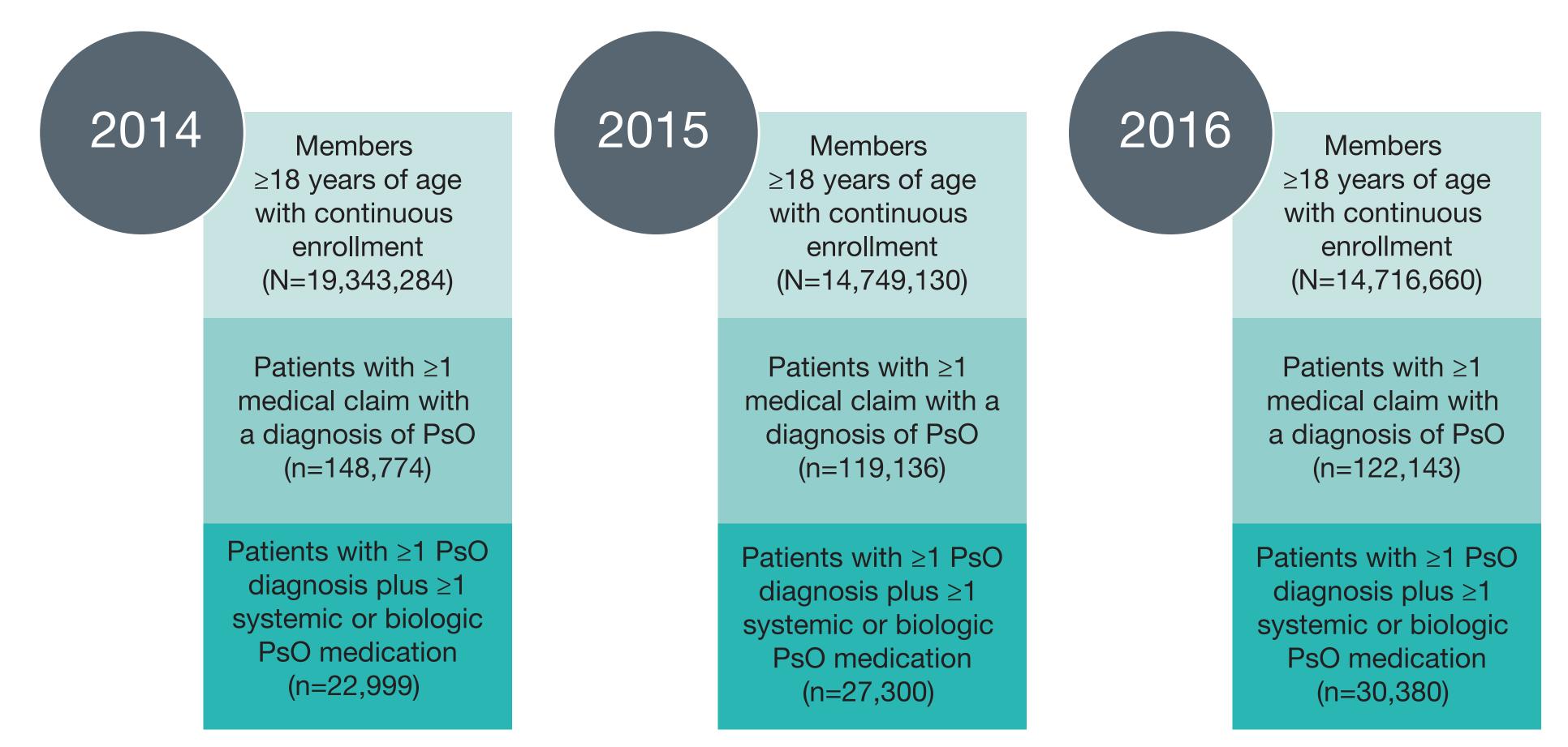
- Psoriasis (PsO) is an inflammatory skin disease associated with a variety of psychiatric comorbidities such as anxiety and depression.
- Psychiatric comorbidities are associated with higher healthcare resource utilization and costs in PsO patients <sup>1</sup>
- This study aimed to evaluate trends in the prevalence of psychiatric comorbid conditions for patients with moderate-to-severe PsO in a commercially-insured US population.

## Methods

## Study Design and Data Sources

- This was a retrospective, cross-sectional study among a commercially insured population in the US.
- De-identified US administrative claims were extracted from the Truven Health MarketScan Commercial claims database in the calendar years of 2014, 2015 or 2016, respectively.

Figure 1. Patient Selection



## **Study Cohorts**

- Moderate to severe PsO cohort: Patients with ≥1 PsO diagnosis and ≥1 prescribed systemic or biologic PsO medication were selected in each calendar year (2014, 2015 or 2016).
- Non-PsO (control) cohort: Members with no diagnosis of PsO, or disorders similar to PsO, were randomly selected from 2014-2016 and matched to PsO patients in a 1:1 ratio on age, gender, health plan type and region.

#### **Study Measures**

- The number of patients with the following psychiatric comorbidities were described in each calendar year
   Anxiety and/or depression: ≥1 diagnosis of anxiety or depression
- Treated anxiety and/or depression: ≥1 diagnosis of anxiety or depression plus a prescription for anxiolytics, antipsychotics, or antidepressants filled within ±30 days of diagnosis
  - Treated major depressive disorder (MDD) a subset of treated anxiety and/or depression: ≥1 MDD diagnosis
- Untreated anxiety and/or depression: ≥1 diagnosis of anxiety or depression but without a
  prescription for any of the above pharmacotherapies filled during each calendar year
- Other psychiatric conditions: bipolar disorder, dementia, schizophrenic disorder, substance abuse disorder, and suicidal ideation

#### **Statistical Analysis**

- Differences between the two study cohorts, across the 3 years respectively, were assessed for statistical significance using the t-test for continuous variables, and chi-square or Fisher's exact test for categorical variables.
- All statistical analyses were conducted using SAS Enterprise Guide 7 (SAS Institute Inc.; Cary, NC).

## Results

#### **Demographic Characteristics**

- A total of 29,999 patients with moderate to severe PsO in 2014, 27,300 patients in 2015, and 30,380 patients in 2016 were selected.
- Demographic characteristics were similar between patients with moderate-to-severe PsO and their matched controls, and were similar across cohorts from each of the 3 years included.
- The mean age of patients was 48 years for all cohorts; slightly more than half of the patients were males, the majority resided in the South or West regions, and most patients were primarily covered by a PPO health plan (Table 1).

Table 1. Demographic Characteristics of the Study Patients

2014				2015				2016				
N patients Age (mean, SD)	Matched Moderate to Severe PsO 29,999		Matched Non-PsO 29,999		Matched Moderate to Severe PsO 27,300		Matched Non-PsO 27,300		Matched Moderate to Severe PsO 30,380		Matched Non-PsO 30,380	
	18-44 (n, %)	10,620	35.4%	10,620	35.4%	9,379	34.4%	9,379	34.4%	10,474	34.5%	10,474
45-64	19,337	64.5%	19,337	64.5%	17,887	65.5%	17,887	65.5%	19,862	65.4%	19,862	65.4%
65+	42	0.1%	42	0.1%	34	0.1%	34	0.1%	44	0.1%	44	0.1%
Gender (n, %)												
Male	15,853	52.8%	15,853	52.8%	14,153	51.8%	14,153	51.8%	15,697	51.7%	15,697	51.7%
Female	14,146	47.2%	14,146	47.2%	13,147	48.2%	13,147	48.2%	14,683	48.3%	14,683	48.3%
Region (n, %)												
Northeast	6,100	20.3%	6,100	20.3%	4,939	18.1%	4,939	18.1%	5,082	16.7%	5,082	16.7%
North central	5,884	19.6%	5,884	19.6%	5,340	19.6%	5,340	19.6%	5,903	19.4%	5,903	19.4%
South	12,850	42.8%	12,850	42.8%	13,248	48.5%	13,248	48.5%	15,229	50.1%	15,229	50.1%
West	4,264	14.2%	4,264	14.2%	3,708	13.6%	3,708	13.6%	4,062	13.4%	4,062	13.4%
Unknown	901	3.0%	901	3.0%	65	0.2%	65	0.2%	104	0.3%	104	0.3%
Commercial Plan Type (n, %)												
HMO	2,872	9.6%	2,872	9.6%	2,506	9.2%	2,506	9.2%	2,745	9.0%	2,745	9.0%
PPO	18,179	60.6%	18,179	60.6%	16,787	61.5%	16,787	61.5%	18,219	60.0%	18,219	60.0%
POS	1,725	5.8%	1,725	5.8%	1,923	7.0%	1,923	7.0%	2,026	6.7%	2,026	6.7%
CDHP/HDHP	4,408	14.7%	4,517	15.1%	4,593	16.8%	4,649	17.0%	5,621	18.5%	5,756	18.9%
Others*	1,089	3.6%	980	3.3%	1,139	4.2%	1,083	4.0%	1,375	4.5%	1,240	4.1%
Unknown	1,726	5.8%	1,726	5.8%	352	1.3%	352	1.3%	394	1.3%	394	1.3%

\*Includes Comprehensive/Indemnity, EPO, missing or Unknown.

#### Clinical Characteristics [Figure 2]

- Compared with matched controls, patients with moderate-to-severe PsO across each of the 3 years studied had a significantly higher overall burden of comorbidity, as measured by the Quan-Charlson Comorbidity index (all p<0.001).
- The moderate-to-severe PsO cohort had a significantly higher percentage of patients with hypertension, hyperlipidemia, diabetes, obesity, and thyroid disease (all p<0.001).
- Compared with matched controls, the moderate-to-severe PsO cohort also had a significantly higher percentage of patients with concomitant medication use, including opioids, antihypertensives and anticholinergics (all p<0.001), across the 3-year study period.

Figure 2. Top Five Most Frequently Occurring Comorbid Conditions and Concomitant Medications Among Study Patients



#### Prevalence of Anxiety and/or Depression [Figure 3]

- The prevalence of patients with an anxiety and/or a depression diagnosis among moderate to severe PsO patients increased from 18.3% in 2014 to 19.7% in 2016, as compared with 12.2% (p<0.001) in 2014 and 13.1% (p<0.001) in 2016 for matched controls.
- Similarly, the prevalence of treated anxiety and/or depression among moderate to severe PsO patients increased from 14.5% in 2014 to 15.9% in 2016, as compared with 9.0% (p<0.001) in 2014 and 9.7% (p<0.001) in 2016 for matched controls.
- The prevalence of treated MDD among moderate to severe PsO patients increased from 3.4% in 2014 to 8.6% in 2016, as compared with 2.0% (p<0.001) in 2014 and 2.9% (p<0.001) in 2016 for matched controls.</li>
- The percentage of patients with untreated anxiety and/or depression was about 2-3% for both cohorts across the 3-year study period.

Figure 3. Prevalence of Anxiety and/or Depression Among Study Patients



#### Prevalence of Other Psychiatric Conditions [Table 2]

- Across the 3-year study period, a significantly higher percentage of patients with moderate-to-severe
   PsO had bipolar or substance abuse disorders compared with controls (all p<0.001).</li>
- No substantial difference in the prevalence of dementia, schizophrenic disorders, and suicidal ideation
  was observed between the two cohorts over the 3-year study period.

Table 2. Prevalence of Other Psychiatric Conditions Among Study Patients

		2014			2015		2016			
	Matched Moderate to Severe PsO	Matched Non-PsO	p-value	Matched Moderate to Severe PsO	Matched Non-PsO	p-value	Matched Moderate to Severe PsO	Matched Non-PsO	p-value	
	n=29,999	n=29,999		n=27,300	n=27,300		n=30,380	n=30,380		
Bipolar Disorders	1.4%	0.7%	<.001	1.4%	0.8%	<.001	1.3%	0.8%	<.001	
Dementia	0.1%	0.1%	0.527	0.1%	0.1%	0.647	0.1%	0.1%	1.000	
Schizophrenic/Delusional Disorders	0.1%	0.1%	0.808	0.1%	0.1%	0.805	0.1%	0.1%	0.622	
Substance Abuse Disorder	7.5%	4.8%	<.001	7.9%	5.0%	<.001	7.3%	4.5%	<.001	
Suicidal Ideation	0.2%	0.1%	0.058	0.2%	0.1%	0.035	0.3%	0.2%	0.011	

## Limitations

- Administrative claims data were collected for facilitating payment for healthcare services; therefore, definitive diagnoses are not available and the true prevalence of treated anxiety and/or depression may be underestimated.
- The study was composed of patients covered by commercial insurance; therefore, the results may not be generalizable to PsO patients with other or no insurance coverage.

## Conclusions

- The prevalence of anxiety and/or depression was significantly higher among patients with moderate-to-severe PsO compared with matched controls without PsO over the period spanning 2014-2016.
- The prevalence of MDD among patients with moderate-to-severe PsO more than doubled over the years 2014-2016.
- Compared with matched controls, the moderate-to-severe PsO cohort had a significantly higher percentage of patients with concomitant medication use, including opioids, antihypertensives and anticholinergics.
- These findings suggest that PsO, as a systemic disease, is associated with higher rates of comorbid psychiatric disorders, such as anxiety and depression than for patients without PsO.
- While further research is needed, PsO treatments that improve psychiatric symptoms, such as anxiety and depression, may provide additional incremental benefit to patients and the healthcare system.

## REFERENCE

1. Feldman SR. Tian H. Gilloteau I. et al. *BMC Health Serv Res.* 2017: 17: 337.