

# WORK ABSENTEEISM AND DISABILITY ASSOCIATED WITH PSORIATIC ARTHRITIS AND PSORIASIS IN THE US

Orbai AM<sup>1</sup>, Reddy SM<sup>2</sup>, Villacorta R<sup>3</sup>, Dennis N<sup>4</sup>, Peterson S<sup>3</sup>, Mesana L<sup>5</sup>, Chakravarty SD<sup>6</sup>, Pacou M<sup>4</sup>, Lin I<sup>3</sup>, Walsh J<sup>7</sup>

<sup>1</sup>Johns Hopkins Arthritis Center, <sup>2</sup>NYU School of Medicine, <sup>3</sup>Janssen Immunology Global Commercial Strategy Organization, Horsham, PA, USA <sup>4</sup>Amaris, Paris, France, <sup>5</sup>Amaris, New York, USA, <sup>6</sup>Janssen Scientific Affairs, LLC, Horsham, PA, US and Drexel University College of Medicine, Philadelphia, PA, USA, <sup>7</sup>University of Utah School of Medicine, George E. Wahlen Veteran Affairs Medical Center

## Introduction

- Psoriasis (PsO) is a chronic inflammatory skin disorder that is characterized by plaques on the skin. It is estimated that PsO affects 2-4% of the United States population<sup>1</sup>.
- Psoriatic arthritis (PsA) is an inflammatory arthritis that often develops in people with PsO.
- The prevalence of PsA is estimated at 19.5% in North American patients with PsO<sup>2</sup>.
- It is estimated that 49% of patients with PsO and/or PsA miss work regularly due to their illness<sup>3</sup>, and that between 20% and 40% of the total costs of PsO are attributable to productivity and work absenteeism<sup>4-8</sup>.
- Previous studies that have analyzed work absenteeism and disability have typically looked only at patients with PsO or PsA, rather than comparing the two<sup>4,5,8,9-12</sup>.
- There is a need for an up-to-date observational study that compares work absenteeism and disability between patients with PsO, PsA, and patients without PsO and PsA using a large administrative claims database.

## Methods

- The MarketScan Commercial Claims and Encounters Database and Health and Productivity Management Database were used, with observations from January 1<sup>st</sup> 2009 – February 29<sup>th</sup> 2020.
- Patients with ≥ 1 inpatient or 2 outpatient diagnoses for PsO or PsA were selected as the case groups. Patients with PsO were required to have no PsA diagnosis in their entire claims history. All patients were ≥ 18 years old at the index date, with ≥ 12 months of continuous enrollment before and after the index date, and eligibility for absenteeism and/or short-term disability benefits ≥ 12 months after the index date. Patients were followed until inpatient death, end of continuous enrollment, end of absenteeism or short-term disability benefits, or end of study.
- For PsO and PsA patients, the index date was defined as the first date of diagnosis. For the control group (patients without PsO and PsA), the index date was assigned as 12 months after the beginning of continuous enrollment in the database.
- Control patients were matched 3:1 to cases (PsO and PsA combined) based on age, sex, and the number of non-rheumatological comorbidities, using the conditions in the Charlson Comorbidity Index<sup>13</sup>.
- Non-recreational absences (sick, disability, leave, family medical leave act, or other), sick leaves, and short-term disability were evaluated for up to five years of follow-up. Costs were estimated by multiplying the number of hours absent by the average hourly wage (in 2019 dollars). Generalized linear mixed models were used to model costs and binary outcomes.

## Objectives

To evaluate and compare work absenteeism and short-term disability among patients with PsO, PsA, and those without PsO and PsA living in the United States from January 1<sup>st</sup> 2009 to February 29<sup>th</sup> 2020.

## Results

### Patient characteristics

	Control	PsO	PsA
<b>Absentee-eligible patients</b>			
Number of patients	21,090	5,785	1,245
Age – Mean (SD)	47.2 (10.0)	47.0 (10.2)	48.4 (9.0)
Male – N (%)	14893 (70.6%)	4062 (70.2%)	904 (72.6%)
Comorbidities – Mean (SD)	0.28 (0.60)	0.27 (0.59)	0.32 (0.66)
<b>Short-term disability-eligible patients</b>			
Number of patients	128,838	35,512	7,434
Age – Mean (SD)	45.6 (10.1)	45.5 (10.2)	46.9 (9.3)
Male – N (%)	76515 (59.4%)	21123 (59.5%)	4381 (58.9%)
Comorbidities – Mean (SD)	0.29 (0.62)	0.28 (0.60)	0.37 (0.70)

- Type of plan: ≥50% had a preferred provider organization plan
- Employment status: >90% active full-time employees

Table 2. Work absenteeism and short-term disability during follow-up

	Control	PsO	PsA
<b>Non-recreational work absences</b>			
Absence in 1st year - N (%)	12559 (59.5%)	3982 (68.8%)	876 (70.4%)
Mean (SD) number of days missed	6.29 (13.11)	7.82 (15.53)	8.78 (17.97)
Mean (SD) cost from days missed	1333.04 (2778.51)	1680.40 (3350.64)	1890.88 (3878.78)
<b>Sick leaves</b>			
Absence in 1st year - N (%)	9422 (44.7%)	3208 (55.5%)	728 (58.5%)
Mean (SD) number of days missed	3.37 (7.62)	4.43 (9.24)	5.10 (10.95)
Mean (SD) cost from days missed	714.90 (1614.39)	953.39 (1999.70)	1099.64 (2377.68)
<b>Short-term disability</b>			
Disability leave in 1st year - N (%)	6217 (4.8%)	2190 (6.2%)	722 (9.7%)
Mean (SD) number of days missed	2.76 (18.21)	3.38 (21.26)	5.15 (25.71)
Mean (SD) cost from days missed	352.88 (2323.59)	436.03 (2736.99)	664.58 (3315.59)

Table 3. Odds ratios (OR) for logistic mixed-effects models

	OR [95% CI]		
	PsA vs. PsO	PsA vs. Control group	PsO vs. Control group
<b>Non-recreational work absence</b>			
1 year	1.08 [0.97, 1.21]	1.55 [1.39, 1.72]	1.43 [1.36, 1.51]
2 years	1.12 [1.03, 1.21]	1.56 [1.45, 1.68]	1.40 [1.35, 1.45]
3 years	1.15 [1.06, 1.25]	1.57 [1.45, 1.70]	1.37 [1.32, 1.42]
4 years	1.19 [1.05, 1.34]	1.58 [1.41, 1.77]	1.33 [1.27, 1.41]
5 years	1.23 [1.03, 1.45]	1.60 [1.36, 1.87]	1.30 [1.21, 1.40]
<b>Short-term disability leave</b>			
1 year	1.56 [1.45, 1.69]	1.95 [1.82, 2.10]	1.25 [1.20, 1.30]
2 years	1.51 [1.43, 1.60]	1.84 [1.75, 1.94]	1.22 [1.18, 1.26]
3 years	1.46 [1.37, 1.55]	1.74 [1.64, 1.84]	1.19 [1.16, 1.23]
4 years	1.41 [1.28, 1.54]	1.64 [1.51, 1.79]	1.17 [1.11, 1.22]
5 years	1.36 [1.19, 1.55]	1.55 [1.37, 1.74]	1.14 [1.07, 1.22]

### Key points

- Non-recreational work absences, sick leaves, short-term disability, and the corresponding costs were highest among patients with PsA and lowest among the control group during follow-up (Figures 1 & 2, Table 2).
- Costs associated with non-recreational work absences and short-term disability were significantly greater among patients with PsA and PsO than the control group at one year ( $p < 0.0001$ ). The costs were also significantly greater among patients with PsA than PsO ( $p = 0.001$  for non-recreational absence costs and  $p < 0.0001$  for short-term disability costs).
- The odds of a non-recreational work absence and short-term disability were significantly greater among patients with PsA and patients with PsO than the control group during each follow-up year (Table 3).
- The odds of a non-recreational work absence were significantly greater among patients with PsA than patients with PsO from year two through year five. Patients with PsA also had greater odds of short-term disability than patients with PsO during each follow-up year (Table 3).

Figure 1. Average costs per patient due to non-recreational work absenteeism

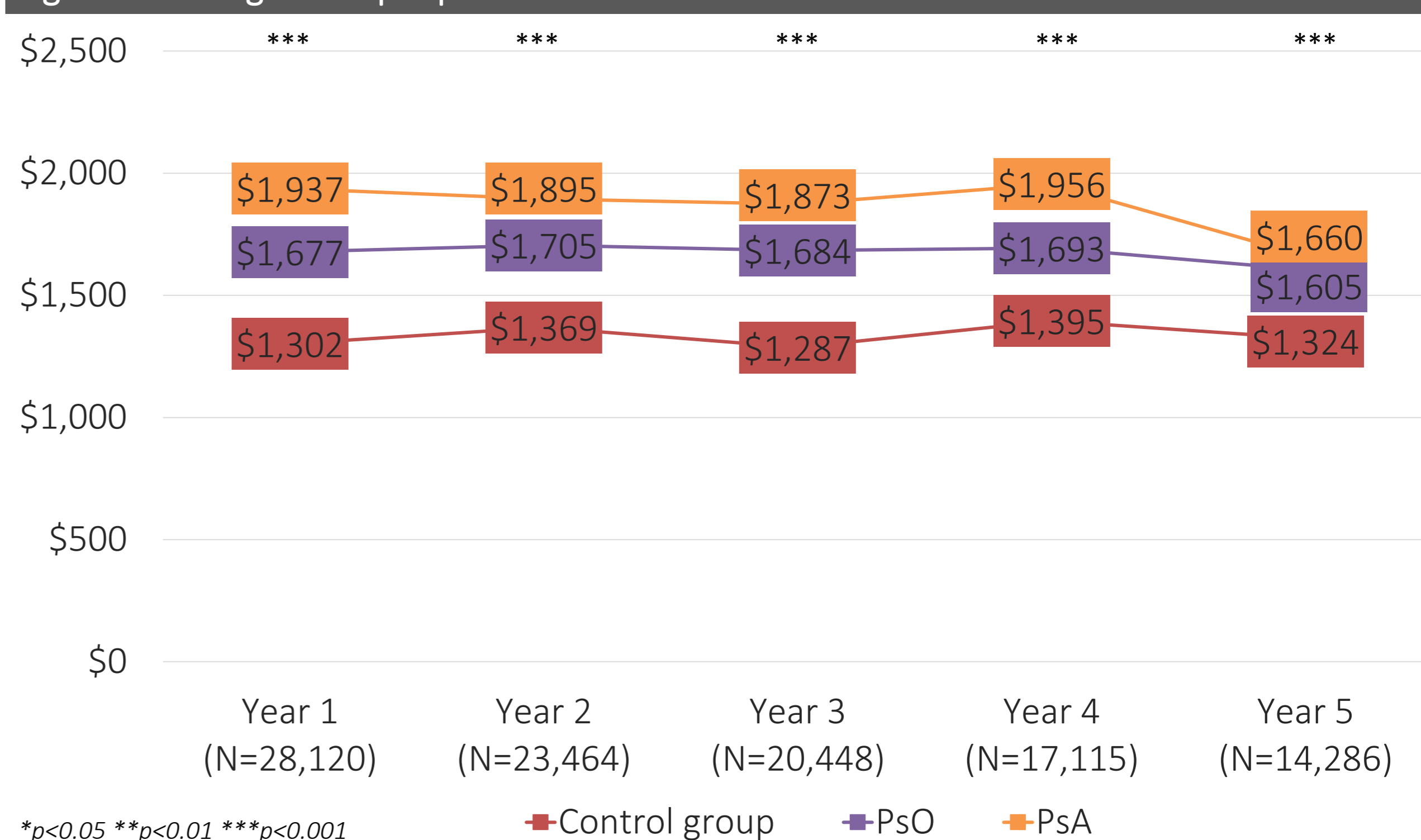
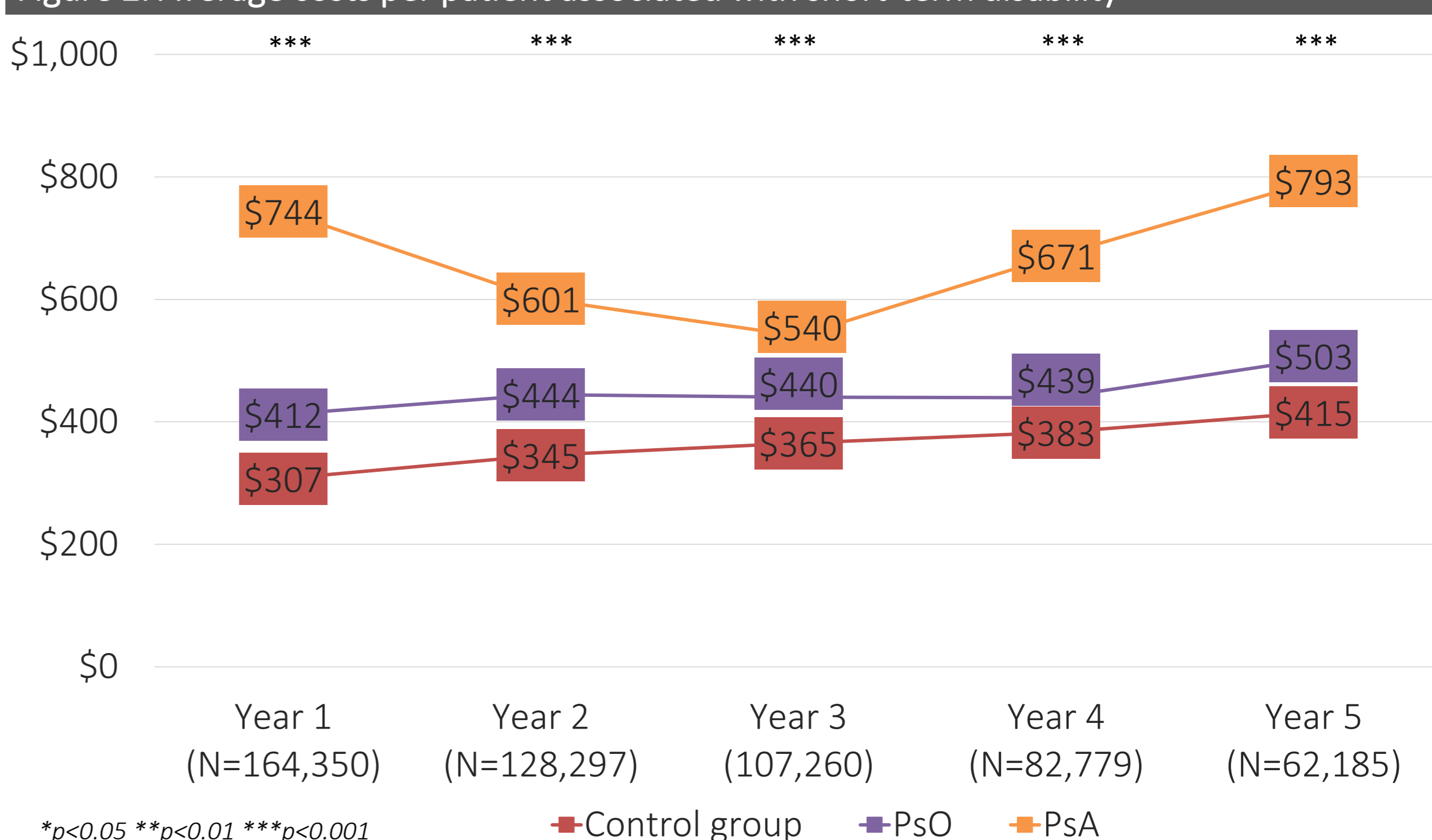


Figure 2. Average costs per patient associated with short-term disability



## Conclusions

- PsA patients experience significantly higher work absenteeism and short-term disability than patients with PsO and the control group. These outcomes are also significantly greater among PsO than the control group.
- Patients with PsA cost on average 1.4x and 1.9x more than the control group in terms of non-recreational work absences and short-term disability, respectively.
- The results from this study add to the body of literature comparing work absenteeism and short-term disability among PsO and PsA patients.
- Robust methods were used to create matched cohorts and to model outcomes over time, minimizing the bias of the comparative results.
- A limitation of this study is that certain underlying confounding factors (e.g. disease severity, alcohol, and smoking) could not be accounted for given the variables available in the MarketScan Databases.
- More effective treatments and medical care for PsA and PsO patients could help improve disease control and reduce work disability costs for employers.

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