Impact on Productivity of Sjögren's Disease in Swedish Patients – A Nationwide Cohort Study Between 2006 and 2022

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Key Takeaways

- **The unemployment rate increased over the disease course among patients with SjD and lower educational attainment, whereas it remained relatively stable among those with higher educational attainment**
- **The proportion of patients receiving sickness-related early retirement increased substantially over the disease course, accompanied by a decline in employment-related income. However, total disposable income was partly maintained through social insurance compensation**
- **These findings warrant attention from both healthcare providers and society and highlight the need for measures to mitigate the productivity loss associated with SjD**

Background

- Sjögren's disease (SjD) is a chronic inflammatory disorder, characterized by impaired lacrimal and salivary gland function resulting in dryness of the eyes and mouth[1]
- In about one-third of cases, other organs such as joints, skin, nerves, lungs, and kidneys may be affected, often termed extra glandular disease. Patients with SjD commonly experience pain and fatigue. Yet, knowledge regarding productivity loss associated with SjD is limited[2]
- The Swedish National Patient Register (NPR) is linked with the Prescribed Drugs Registry, the Cancer Register, and the Labor Market Studies Registry, and provides population-based longitudinal data of patients with SjD, including clinical characteristics and morbi-mortality that can be used for research[3]

Objective

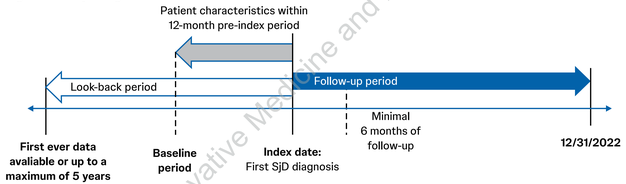
To determine the impact of SjD on patient productivity in a nation-wide cohort derived from the Swedish NPR

Methods

Study design and population

- This retrospective cohort study identified patients with SjD who were registered in the Swedish NPR
- Adult patients (≥18 years) with at least two independent diagnoses of SjD from internal medicine or rheumatology, and without co-existing systemic rheumatic diseases were selected between 2006 and 2022
- All patients were linked to the National Longitudinal Integration Database for Health Insurance and Labor Market Studies, with available data through 2021
- Patients ≤65 years old were considered working age and were stratified by education attainment and sex
- Unemployment rate was reported, and job-related income and total individual disposable income was inflation-adjusted to the 2021 reference year level

Figure 1. Study design



SjD=Sjögren's disease.

Results

Baseline characteristics of population-based cohort of SjD

- A total of 4463 patients with SjD were identified with a median age at diagnosis of 58 years (interquartile range [IQR]: 46–68), and 91.7% were female (**Table 1**)

Table 1. Baseline demographics of SjD cohort

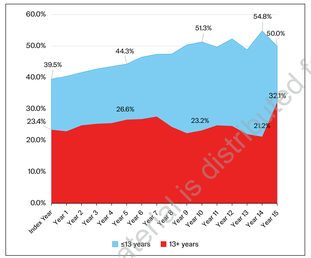
	Demographics (N=4463)
Age at index date, median (IQR), years	58 (46.0–68.0)
Sex - female, n (%)	4093 (91.7)
Education, n (%)	
0–9 years	793 (17.8)
10–13 (high school)	1900 (42.6)
13+ (post secondary education)	1565 (35.1)
Post-graduate	44 (1.0)
Missing	161 (3.6)
Employment status, for patients 18–65 years old, n (%)	
In employment	2022 (67.2)
Not in employment	987 (32.8)
Sick leave more than 14 days at baseline period, yes, n (%)	964 (21.6)
Early sickness pension at baseline, yes, n (%)	798 (17.9)
Duration of follow-up, median (IQR), years	8.1 (4.3–13.2)

IQR=interquartile range, SjD=Sjögren's disease.

Unemployment rate increases over time post-SjD diagnosis, which follows by increasing rates of patients receiving early sickness pension before age of 66

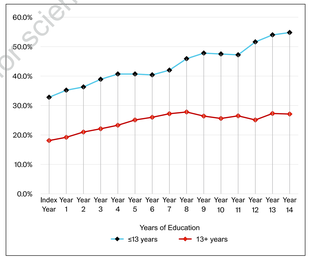
- Among working-age patients with complete information on employment status and education (n=2959), 39.5% (n=684) of those with ≤13 years of education (n=1731) were reported unemployed, compared with 23.4% of those with >13 years of education (n=1228)
  - The unemployment rate increased significantly for patients with lower education: 44.5% unemployed 5 years after SjD diagnosis compared with 51.3% unemployed 10 years post-diagnosis (**Figure 2A**)
- Consistent with this trend, a greater increase in the proportion of patients with SjD receiving an early sickness pension was observed in this national cohort (**Figure 2B**)
- The median age of patients when receiving their first early sickness pension was 54 years (IQR: 48–58) for higher education attainment group compared to 52 years (IQR: 46–56) for patients with lower education attainment

Figure 2A. Unemployment in prevalent SjD among patients aged 18–65 years



Annual unemployment rate among patients with SjD (≥65 years) from index diagnosis to Year-15 post SjD, stratified by highest education attainment. SjD=Sjögren's disease.

Figure 2B. Receiving early pension (part- or full-time) due to sickness in prevalent SjD among patients aged 18–65 years



Rate among patients with SjD receiving early pension due to sickness (≥65 years) during the study period, stratified by highest education attainment. SjD=Sjögren's disease.

Trends in job absenteeism, increase in early pension due to sickness and income changes for patients with SjD

- In general, unemployment rates increased for both sexes, with higher unemployment rates observed at baseline and 10 years of follow-up for women (33.0% and 40.2%) compared with men (29.7% and 33.3%) (**Table 2**)

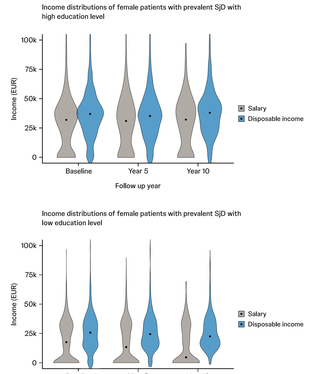
Table 2. Productivity assessments for prevalent patients with SjD stratified by sex

	Female	Male
Unemployment, n (%) on prevalent SjD		
Index year	925 (33.0)	62 (29.7)
Year-5	589 (37.5)	31 (27.7)
Year-10	282 (40.2)	16 (33.3)
Prolonged job absenteeism due to sickness (≥14 days at least one occasion during the year), n (%) on prevalent SjD		
Index year	795 (39.32)	
Year-5	314 (29.51)	
Year-10	145 (32.08)	
Number of sick-leave days for patients who required prolonged sick-leave, mean SD, days		
Index year	46.0 (87.3)	43.1 (85.6)
Year-5	36.0 (83.4)	21.1 (69.3)
Year-10	37.0 (78.2)	14.7 (39.8)
Early pension due to sickness (part-time or full-time), n (%) on prevalent SjD		
Index year	762 (27.2)	35 (16.7)
Year-5	547 (34.8)	27 (24.1)
Year-10	279 (39.7)	10 (20.8)
Age at receiving first early pension, median (IQR), years	52 (47–57)	56 (48–59)

IQR=interquartile range, SD=standard deviation, SjD=Sjögren's disease.

- The median (IQR) job-related income for female patients with lower education was €17560.7 (0–32280) at baseline and €4637.8 (0–29751.6) at 10 years of follow-up
- No notable change occurred in median [IQR] job-related income for patients with higher education from baseline (€31989 [11317.1–42716.7]) to 10 years of follow-up (€32215.8 [11124.3–44379.1]) (**Figure 3**)
- Worth noting in this study, a low degree of change in total individual deposable income was observed across all patient subgroups, reflecting the social insurance compensation for working-age patients

Figure 3. Annual income for female patients with prevalent SjD at index year (baseline), year-5, and year-10



PRESENTED AT: The American College of Rheumatology (ACR) Convergence 2026; November 6–11, 2026; Orlando, Florida, USA. **REFERENCES: 1.** Parisis D, et al. *J Clin Med.* 2020;9(7):2298. **2.** Mariette X, Criswell LA. *N Engl J Med.* 2018;378(10):931–939. **3.** Sakakibara S, et al. *Pharmacoepidemiol Drug Saf.* 2024;33(6):e5780. **ACKNOWLEDGMENTS:** Medical writing support was provided by Jaymin Parikh, PhD, of SIRO Medical Writing Pvt. Ltd., India, under the direction of the authors in accordance with Good Publication Practice guidelines (*Ann Intern Med.* 2022;175:1298–1304). Namiko Abe, PhD, of Johnson & Johnson provided additional editorial support. Layout design and formatting for this encore poster were provided by Ganesh Karpe (SIRO Medical Writing Pvt. Ltd., India). **DISCLOSURES: Ying Qu, Federico Zazzetti, Kavita Gandhi,** and **Mikael Sjölin:** Employees of Johnson & Johnson; may own stock or stock options in Johnson & Johnson. **Johannes Mofors:** None declared. **Jakob Börsum:** Employee of Cytel. **Peter Olsson:** Received consultant fees from Novartis, Eli Lilly, and Boehringer Ingelheim. **FUNDING:** This work was sponsored by Johnson & Johnson. **PREVIOUSLY PRESENTED AT:** The 17th International Symposium on Sjögren's Disease (ISSJD); September 29–October 2, 2026; Paris, France.

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