

The Impact of Migraine on Canadians' Productivity: A Real-World Pharmacy-Based Study

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INTRODUCTION

- Migraine is a debilitating neurological disorder having a prevalence estimated at 8.3% in Canada in 2011, with a higher prevalence in women (11.8%) compared to men (4.7%).¹
- Migraine is characterized by moderate to severe headache attacks that are often accompanied by neurological symptoms such as sensory and dysautonomic symptoms, including nausea, vomiting, photophobia, and phonophobia.²
- The impact of migraine extends far beyond the physical pain of a migraine attack, with substantial effects on multiple aspects of an individual's life, including **health-related quality of life, work and school productivity** as well as **day-to-day functioning**.
- In 2016, migraine was ranked the second leading cause of disability overall, and the leading cause of disability in people younger than 50 years, impacting particularly women.³
- Clinical evidence required for market authorization is mostly obtained from randomized controlled trials, which are the gold standard for assessing the efficacy of new drugs.⁴ However, in many countries including Canada, drug approval is not sufficient to allow the integration of innovations in the health care system. Decision makers have shown a growing interest in patient-reported outcomes (**PROs**), providing additional valuable information.⁵
- The **PROxy Network** is a research network bringing together community pharmacies across Quebec (Canada) to facilitate the generation of **real-world evidence**. This network is designed to better understand a disease or a treatment through data collected directly from participants using PROs.⁶
- While previous studies have estimated the burden of migraine in Canada, these studies focused particularly on direct healthcare costs.^{1,7,8} Limited published Canadian data is available on the impact of migraine on work productivity.

OBJECTIVE

- The objective of this study was to estimate the **impact of migraine on the productivity and activities of daily living** in adults receiving treatment for their migraine episode.

METHODS

- A **cross-sectional observational study** was performed in **community pharmacies** in Quebec (Canada).⁹
- Eligible participants were adult with migraine having a new or current prescription (renewal in the last 3 months) of any formulations of a triptan actively working or studying.
- The recruitment period was from November 7, 2022 to April 6, 2023. Participant screening was performed by 15 pharmacists members of the PROxy Network.
- Participants' and migraines' related characteristics were self-reported. Productivity and activity impairment were assessed using the **Migraine Disability Assessment Scale (MIDAS)**.¹⁰
- Presenteeism was defined as the number of days when work or school efficiency was reduced by half due to headache.
- The cost of productivity loss due to absenteeism and presenteeism was calculated in 2022 Canadian dollars (CAD) using the average hourly wage for both full and part-time employees.¹¹

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RESULTS

Table 1. Participants' and Migraine-Related Characteristics

Characteristics	Total Population (n=92)
Gender, n (%)	
Female	80 (87)
Age, mean (SD)	44.5 (12.2)
Highest education level, n (%)	
Elementary	1 (1.1)
High School	38 (41.3)
College	26 (28.3)
University	26 (28.3)
Main daily activity, n (%)	
Employed, full-time	69 (75.0)
Employed, part-time	22 (23.9)
Student, full-time	2 (2.2)
Student, part-time	4 (4.3)
Comorbidities, n (%)	
None	36 (39.1)
Anxiety	19 (20.7)
Depression	15 (16.3)
Other	26 (38.2)
Time since onset of migraine, n (%)	
Less than 2 years	3 (3.3)
Between 2 and 5 years	10 (10.9)
5 years and more	79 (85.9)
Number of days of migraine, in the last 3 months, mean (SD)	20.7 (22.5)
Migraine days per month, in the last 3 months, n (%)	
None	0 (0)
Between 1 and 6 days	50 (54.3)
Between 7 and 14 days	12 (13.0)
15 days or more	30 (32.6)
Days per month of prescribed migraine medication, in the last 3 months, n (%)	
None	1 (1.1)
1 – 3 days	28 (30.4)
4 – 9 days	40 (43.5)
10 – 14 days	12 (13.0)
15 days or more	11 (12.0)

- A total of 100 participants were recruited, with 92 meeting all inclusions criteria (**Table 1**). All included participants were treated with an acute treatment for their migraine (i.e., triptan).
- Most participants (87%) were female, employed full-time (75%) and had a renewal of their triptan in the last 3 months (73%).
- The most commonly reported underlying conditions were anxiety (20.7%) and depression (16.3%).
- Most participants (85.9%) experienced migraine for more than 5 years.
- Using self-reported number of migraine attacks per month, 54.3%, 13.0% and 32.6% had episodic, frequent episodic and chronic migraine, respectively. Mean **number of migraine days** in the last 3 months was **20.7 days**.
- On a scale of 0 to 10, mean intensity of migraine pain was reported at 6 by participants.
- Using the MIDAS score, most participants (63.1%) had moderate to severe disability due to their migraine.
- The average percentage of productivity loss due to **presenteeism was more than two-times higher than absenteeism (Table 2)**.
- The average economic cost of absenteeism and presenteeism is estimated at CAD255.68 and CAD517.06 per participant per month, respectively, leading to an overall **monthly cost of productivity loss of CAD772.74** per participant.

Table 2. Disability and Productivity Impairment

MIDAS Grade (n=92)	n (%)
I – Little or No Disability	22 (23.9)
II – Mild Disability	12 (13.0)
III – Moderate Disability	19 (20.7)
IV – Severe Disability	39 (42.4)
Work and School Productivity Impairment (n=86)	Percentage of Time Impairment (%)
Absenteeism	6.9
Presenteeism	12.1

CONCLUSIONS

- This PROxy study generates RWE that fill a gap in Canadian migraine evidence and provide a comprehensive assessment of the burden associated with migraine in Canadian workers and students.
- Results of this cross-sectional observational study showed that, despite receiving acute treatment for their migraine episode, the **burden of migraine on productivity is still high in Canada**.
- The impact of migraine on presenteeism appears to be an important factor, highlighting an **unmet need** in the treatment of migraine in Canada.

DISCLOSURES

- The PROxy Network is an initiative of PeriPharm Inc.
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