THE HIDDEN BURDEN OF MIGRAINE: ANALYSIS USING A FISCAL FRAMEWORK IN COLOMBIA



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INTRODUCTION

 Migraine is a highly prevalent and incapacitating neurological disorder often underdiagnosed and undertreated. Consequently, despite leading to considerable disability and lost productivity, migraine is often associated with relatively low healthcare costs¹.

METHODS

- The model simulated the annual fiscal consequences of migraine in the entire Colombian population. It captured tax revenue and transfer payments (disability benefits and public healthcare expenditure) – Figure 1.
- The fiscal burden associated to the entire cohort with prevalent migraine was reported as annual incremental fiscal consequences to the Colombian government.

- Focusing on direct healthcare costs alone undermines the true economic burden of migraine².
- This study adapted a published modelling framework previously used to inform health policy in Sweden³ and the UK⁴.

OBJECTIVE

- To assess the economic burden of migraine from the perspective of the Colombian government.
- This was achieved by applying migraine prevalence⁵ to age and sex-specific demographic distributions⁶. Inputs informing labor market participation⁷, absenteeism losses⁸, and healthcare cost^{9,10} were extracted from a recent published Colombian study and official databases. All costs were expressed in 2022 Colombian pesos (COP).
- The impact of migraine on employment status and absenteeism was sourced from international peerreviewed publications (proxy) given that Colombianspecific data were unavailable. Relative risks were extracted for employment^{11,12} and disability¹³. Annual workdays missed were used to estimate absenteeism¹⁴.



RESULTS

• A total of 813,208 people aged 18 years and older were estimated to be affected by migraine annually, 84.9% of all migraine patients are females. The model predicted that

Table 1. Fiscal perspective: incremental consequences of migrainein the adult population with prevalent migraine (COP, millions).

	MIGRAINE POPULATION	GENERAL POPULATION	INCREMENTAL
Public sector absenteeism	-68,315	-21,032	-47,283
Direct taxes from employment	484,778	509,920	-25,142
Indirect taxes from employment	1,048,645	1,103,032	-54,387
Foregone corporation taxes	-105,068	-32,348	-72,720
Unemployment allowances	-108,766	-96,365	-12,400
Disability pension	-5,459	-5,147	-312
Taxes from transfers	584,601	581,547	3,055
Healthcare costs	-36,478	0	-36,478
TOTAL	1,793,939	2,039,606	-245,667

Total annual gross income losses to the cohort with prevalent migraine was estimated to be 311,388M COP, an average of 382,913 COP per person with migraine. Total healthcare costs (public and private) attributed to the population with prevalent migraine 47,102M COP (Table 2).

these people would experience 7,426,448 migraine days, including both episodic and chronic migraine (**Figure 2**).

Figure 2. Estimated prevalence of migraine in Colombia



 The fiscal burden of migraine in the entire population was estimated to cost the Colombian government 245,667 M COP in 2022. The burden was mostly due to forgone taxes (62.0%), while 19.2% was due to productivity losses in the public sector and 14.8% was due to public healthcare costs (Table 1).

* Negative values express costs to the government, and positive values express benefits to the government's accounts.

 Chronic migraine accounts for 7.6% of all cases, with a total of 61,463 cases. The financial impact of the chronic migraine cohort is estimated to be approximately 65,401 M COP, an average of 1,064,074 COP per chronic migraine patient. • The overall fiscal burden was equivalent to 0.02% of Colombian gross domestic product¹⁵ and 0.3% of the annual public healthcare spending¹⁵.

Table 2. Societal perspective: incremental consequences of migrainein the adult population with prevalent migraine (COP, millions).

	MIGRAINE POPULATION	GENERAL POPULATION	INCREMENTAL
Gross income from any employment	6,003,964	6,315,352	-311,388
Private employees	2,997,603	3,063,842	-66,239
Public employees	682,167	697,233	-15,066
Self-employed	2,324,194	2,554,278	-230,083
Total healthcare costs	47,102	0	-47,102
Government/ compulsory schemes	-36,478	0	-36,478
Private Insurance	-3,792	0	-3,792
Out-of-pocket	-6,833	0	-6,833
TOTAL	5,956,862	6,315,352	-358,490

* Negative values express societal losses, and positive values express societal benefit

CONCLUSION

 This fiscal analysis monetizes the direct and indirect economic burden of migraine to the Colombian government, providing a valuable insight to decision-makers. The findings highlight important consequences of migraine to the labour market, especially in terms of reduced productivity and personal income losses due to foregone employment.

DISCUSSION

 It is recommended that when planning public health programs and setting priorities for people living with migraine, timely and accurate diagnosis, and appropriate treatment are implemented. Focus should be given to people living with chronic migraine, who experience the higher disease burden.

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