# The Burden of Migraine in Brazil's Private Healthcare System: Results From the Brazil Migraine Real-World Evidence (BREM) Study

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Camila Penteado,¹ Arcangela Valle,¹\* Alexandre Vieira Ribeiro da Silva,² Nathalia Kuroda Assumpção,² Andrés Felipe Florez Rivera,³ Daniel Vaz de Andrade,³ Weixiu Luo,⁴ Di Zhang,⁴ Aviva Levin,⁵ Rinat Ribalov,⁶ Gabriela Kivelevitch⁵

<sup>1</sup>Teva Pharmaceutical Industries Ltd, São Paulo, Brazil; <sup>2</sup>Sandbox – Data for Health, São Paulo, Brazil; <sup>3</sup>Funcional Markets Medical Affairs, Tel Aviv, Israel; <sup>3</sup>Funcional Health, São Paulo, Brazil; <sup>4</sup>Teva Branded Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Tel Aviv, Israel; <sup>4</sup>Teva Pharmaceutical Industries Ltd, International Markets Medical Affairs, Israel Markets Medical Affair <sup>6</sup>Teva Pharmaceutical Industries Ltd, Global Health Economics Outcomes and Values, Tel Aviv, Israel.

Objective: to assess the socio-demographic and clinical characteristics, and direct costs and healthcare resource utilization (HCRU) for patients with migraine within Brazil's private healthcare system

## Background

\*Former affiliation.

- Migraine is a common neurological condition, with a prevalence of 14.4% globally<sup>1</sup> and 15.2% in Brazil<sup>2</sup>
- In addition to causing significant physical, emotional, economic, and social burden to individuals,<sup>3</sup> migraine has a substantial impact on healthcare systems<sup>4</sup>
- Real-world data on migraine-related direct costs and HCRU are needed to determine the burden of this disease on healthcare systems, and build more efficient strategies to reduce its impact<sup>5</sup>
- This study adds to the limited data on the differences in direct costs and HCRU between those with and without migraine within Brazil's private healthcare system

### Methods

- This retrospective claims analysis used private health insurance claim data from Brazil for patients (aged ≥18 years) with a diagnosis code for migraine (International Classification of Diseases, 10<sup>th</sup> Revision G43.X)<sup>6</sup> between January 2019 until June 2024
- A control group included patients without migraine matched 1:1 for age, gender, geographical state, health insurance modality, and comorbidities
- Direct costs and HCRU were compared for patients diagnosed with migraine versus controls without migraine
- Kruskal-Wallis and Chi-square tests were used for comparisons between the groups

## Socio-demographic and general clinical characteristics

- Of 7,382,457 patients with private health insurance claim data available, 3,159,764 with any International Classification of Diseases (ICD) code were identified
- Among these, 22,685 (0.7%) were aged ≥18 years with a diagnosis of migraine (ICD-10 G43.X)
- Characteristics were generally balanced between the migraine and control groups (p>0.05 for all comparisons), Table 1
- The most frequent comorbidities in patients with migraine were musculoskeletal disease (female, 24.8%; male, 7.5%), cardiovascular disease (female, 12.6%; male, 4.9%), and depression (female, 12.1%; male, 2.6%)
- In total, 22.7% of the migraine group had ≥2 comorbidities

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### Table 1. Socio-Demographic Characteristics and Comorbidities

Category	Migraine (N=22,685)		Control (N=22,685)		
	<b>Female</b> N=16,696	<b>Male</b> N=5,989	<b>Female</b> N=16,696	<b>Male</b> N=5,989	
Characteristics*					
Average age, years (SD)	47 (18)	44 (16)	48 (17)	51 (17)	
Age distribution, n					
18-20 21-30 31-40 41-50 51-60 61-70 71-80 >80 Geographical state, n <sup>†,‡</sup>	427 2,902 4,226 3,802 2,387 1,438 905 609	169 1,062 1,384 1,254 834 601 447 238	578 2,940 4,208 3,711 2,369 1,411 879 600	214 1,115 1,375 1,190 869 583 416 227	
São Paulo Minas Gerais Paraná Rio de Janeiro	20	21,341 208 255 221		21,423 207 220 225	
Health insurance modality, n <sup>†</sup> Self-management Medical Cooperative Group Medicine Philanthropy Specialized Health Insurer	15 20,4 5 2,0	9 )51	20, 6 2,2		
Comorbidities, n (%) §					
Depression Diabetes Cardiovascular disease Lung disease Kidney disease Oncological disease Musculoskeletal disease Mental disorder (other) Two or more comorbidities	2,745 (12.1) 1,729 (7.6) 2,857 (12.6) 538 (2.4) 149 (0.7) 717 (3.2) 5,624 (24.8) 1,159 (5.1) 4,004 (17.7)	591 (2.6) 588 (2.6) 1,111 (4.9) 206 (0.9) 57 (0.3) 232 (1.0) 1,698 (7.5) 217 (1.0) 1,144 (5.0)	2,525 (11.1) 1,549 (6.8) 2,802 (12.4) 423 (1.9) 76 (0.3) 647 (2.9) 5,654 (24.9) 1,002 (4.4) 3,646 (16.1)	515 (2.3) 539 (2.4) 1,080 (4.8) 160 (0.7) 30 (0.1) 191 (0.8) 1,677 (7.4) 163 (0.7) 999 (4.4)	

\*p>0.05 for all comparisons; †Data available for male and female combined; ‡Only the most common geographical states are presented; §Patients could be included in ≥1 comorbidity group. SD, standard deviation.

CP, AV, WL, DZ, AL, RR, and GK are current or former employees and/or shareholders of Teva Pharmaceuticals. AVRdS and NKA are collaborators at Sandbox – Data for Health, are not employees or shareholders of Teva Pharmaceuticals, and have no conflicts of interest. AFFR and DVdA are collaborators at Funcional Health Tech, are not employees or shareholders of Teva Pharmaceuticals, and have no conflicts of interest.

## Compared with the control group, most costs and HCRU measures were significantly higher for patients with migraine

Table 2. Summary of Total Costs and Costs per Health Service Event by Study Group

Median (Q1, Q3)       3,183.83 (1,965.52)       1,965.52 (1,499.43,6,768.58)       (702.75,5,131.86)         For all patients and all health services*       183,317,938.70       140,863,641.75       +30.13%         Paid cost (R5) per:         Elective consultation       94.42 (52.81)       94.33 (57.39)       0.09 (-0.93, 1.10)         Median (Q1, Q3)       100.00       100.00       100.00       100.00         Mean (SD)       34.79 (87.79)       31.39 (90.23)       3.40 (1.76, 5.03)         Median (Q1, Q3)       8.40       7.50       7.50         (3.64, 25.00)       (3.61, 22.50)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Mean (SD)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00       (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit       Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25	p-value*	Migraine – Control Mean difference (95% CI)	Control (N=22,685)	Migraine (N=22,685)		
Mean (SD)       8,081.02 (31,213.19)       6,209.55 (20,952.80)       1,871.47 (1,377.04, 2,365.89)         Median (Q1, Q3)       3,183.83       1,965.52         (1,499.43, 6,768.58)       (702.75, 5,131.86)         For all patients and all health       183,317,938.70       140,863,641.75       +30.13%*         Elective consultation         Mean (SD)       94.42 (52.81)       94.33 (57.39)       0.09 (-0.93, 1.10)         Median (Q1, Q3)       100.00       100.					Total cost (R\$)	
Median (Q1, Q3)       3,183.83       1,965.52         (1,499.43,6,768.58)       (702.75,5,131.86)         For all patients and all health services*         Paid cost (R5) per:         Elective consultation         Mean (SD)       94.42 (52.81)       94.33 (57.39)       0.09 (-0.93, 1.10)         Median (Q1, Q3)       100.00       100.00       (72.00, 114.22)         Elective exam         Mean (SD)       34.79 (87.79)       31.39 (90.23)       3.40 (1.76, 5.03)         Median (Q1, Q3)       8.40       7.50         (3.64, 25.00)       (3.61, 22.50)         Complementary therapy session*         Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25 <td colspa<="" td=""><td></td><td></td><td></td><td></td><td>Per patient over all health services<sup>†</sup></td></td>	<td></td> <td></td> <td></td> <td></td> <td>Per patient over all health services<sup>†</sup></td>					Per patient over all health services <sup>†</sup>
(1,499.43, 6,768.58)	<0.001	1,871.47 (1,377.04, 2,365.89)	6,209.55 (20,952.80)	8,081.02 (31,213.19)	Mean (SD)	
For all patients and all health services¹ Paid cost (R\$) per:  Elective consultation  Mean (SD)			1,965.52	3,183.83	Median (Q1, Q3)	
Services*           Paid cost (R\$) per:           Elective consultation         Wean (SD)         94.42 (52.81)         94.33 (57.39)         0.09 (-0.93, 1.10)           Median (Q1, Q3)         100.00			(702.75, 5,131.86)	(1,499.43, 6,768.58)		
Elective consultation       94.42 (52.81)       94.33 (57.39)       0.09 (-0.93, 1.10)         Mean (SD)       94.42 (52.81)       94.33 (57.39)       0.09 (-0.93, 1.10)         Median (Q1, Q3)       100.00       100.00       100.00         (72.00, 112.35)       (72.00, 114.22)       144.22)         Elective exam       34.79 (87.79)       31.39 (90.23)       3.40 (1.76, 5.03)         Median (Q1, Q3)       8.40       7.50         (3.64, 25.00)       (3.61, 22.50)       -1.93 (-6.65, 2.79)         Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00       6,519.00       (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit       Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       <	-	+30.13% <sup>§</sup>	140,863,641.75	183,317,938.70		
Mean (SD)       94.42 (52.81)       94.33 (57.39)       0.09 (-0.93, 1.10)         Median (Q1, Q3)       100.00       100.00         (72.00, 112.35)       (72.00, 114.22)         Elective exam       (75.00)       31.39 (90.23)       3.40 (1.76, 5.03)         Median (Q1, Q3)       8.40       7.50         (3.64, 25.00)       (3.61, 22.50)       (3.61, 22.50)         Complementary therapy session <sup>®</sup> Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86       (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization       Mean (SD)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Mean (Q1, Q3)       6,069.54       6,519.00       (3,993.66, 13,903.74)         ER visit         Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)					Paid cost (R\$) per:	
Median (Q1, Q3)       100.00       100.00         (72.00, 112.35)       (72.00, 114.22)         Elective exam					Elective consultation	
Elective exam  Mean (SD)  Median (Q1, Q3)  Median (SD)  Mean (SD)  Median (Q1, Q3)  Median (Q1, Q3)  Median (Q1, Q3)  Median (Q1, Q3)  Elective hospitalization  Mean (SD)  Median (Q1, Q3)  Median (SD)  Median (SD)  Mean (SD)  Median (SD)  Medi	0.16	0.09 (-0.93, 1.10)	94.33 (57.39)	94.42 (52.81)	Mean (SD)	
Elective exam         Mean (SD)       34.79 (87.79)       31.39 (90.23)       3.40 (1.76, 5.03)         Median (Q1, Q3)       8.40       7.50         (3.64, 25.00)       (3.61, 22.50)         Complementary therapy session <sup>¶</sup> Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00       (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit         Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)			100.00	100.00	Median (Q1, Q3)	
Mean (SD)       34.79 (87.79)       31.39 (90.23)       3.40 (1.76, 5.03)         Median (Q1, Q3)       8.40       7.50         (3.64, 25.00)       (3.61, 22.50)         Complementary therapy session¹         Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization         Mean (SD)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00         (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit         Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)			(72.00, 114.22)	(72.00, 112.35)		
Median (Q1, Q3)       8.40       7.50         (3.64, 25.00)       (3.61, 22.50)         Complementary therapy session <sup>¶</sup> Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization         Mean (SD)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00       (3,893.66, 13,993.74)         ER visit         Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)					Elective exam	
Complementary therapy session <sup>11</sup> Mean (SD)  Median (Q1, Q3)  Elective hospitalization  Mean (SD)  Median (Q1, Q3)  Median (Q1, Q3)  Elective hospitalization  Mean (SD)  Median (Q1, Q3)  ER visit  Mean (SD)  Median (Q1, Q3)  M	<0.001	3.40 (1.76, 5.03)	31.39 (90.23)	34.79 (87.79)	Mean (SD)	
Complementary therapy session**         Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00       (3,993.66, 13,903.74)         ER visit       Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25       (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)			7.50	8.40	Median (Q1, Q3)	
Mean (SD)       43.56 (256.90)       45.49 (256.69)       -1.93 (-6.65, 2.79)         Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization       0.270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00       6,519.00         (3,802.45, 12,955.00)       (3,993.66, 13,903.74)       0.22 (10.97, 21.46)         ER visit       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)			(3.61, 22.50)	(3.64, 25.00)		
Median (Q1, Q3)       26.18       20.86         (10.61, 38.79)       (9.77, 35.29)         Elective hospitalization         Mean (SD)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00         (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit         Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)					Complementary therapy session¶	
Elective hospitalization  Mean (SD)  Median (Q1, Q3)  ER visit  Mean (SD)  10,270.75 (12,637.95) 6,069.54 6,519.00 (3,802.45, 12,955.00)  178.53 (279.39)  16.22 (10.97, 21.46)  Median (Q1, Q3)  127.97 103.25 (59.75, 246.64)  Emergency hospitalization  Mean (SD)  8,631.64 (26,617.57)  8,439.88 (15,797.48)  191.76 (-211.03, 594.54)	<0.001	-1.93 (-6.65, 2.79)	45.49 (256.69)	43.56 (256.90)	Mean (SD)	
Elective hospitalization  Mean (SD)  10,270.75 (12,637.95)  9,982.37 (10,789.90)  288.38 (81.12, 513.62)  Median (Q1, Q3)  6,069.54  6,519.00  (3,802.45, 12,955.00)  (3,993.66, 13,903.74)  ER visit  Mean (SD)  194.75 (289.99)  178.53 (279.39)  16.22 (10.97, 21.46)  Median (Q1, Q3)  127.97  103.25  (59.75, 246.64)  (50.00, 223.96)  Emergency hospitalization  Mean (SD)  8,631.64 (26,617.57)  8,439.88 (15,797.48)  191.76 (-211.03, 594.54)			20.86	26.18	Median (Q1, Q3)	
Mean (SD)       10,270.75 (12,637.95)       9,982.37 (10,789.90)       288.38 (81.12, 513.62)         Median (Q1, Q3)       6,069.54       6,519.00         (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit         Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)			(9.77, 35.29)	(10.61, 38.79)		
Median (Q1, Q3)       6,069.54       6,519.00         (3,802.45, 12,955.00)       (3,993.66, 13,903.74)         ER visit       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)					Elective hospitalization	
(3,802.45, 12,955.00) (3,993.66, 13,903.74)  ER visit  Mean (SD)	0.124	288.38 (81.12, 513.62)	9,982.37 (10,789.90)	10,270.75 (12,637.95)	Mean (SD)	
ER visit  Mean (SD)  Median (Q1, Q3)  194.75 (289.99)  178.53 (279.39)  16.22 (10.97, 21.46)  127.97  103.25  (59.75, 246.64)  (50.00, 223.96)  Emergency hospitalization  Mean (SD)  8,631.64 (26,617.57)  8,439.88 (15,797.48)  191.76 (-211.03, 594.54)			6,519.00	6,069.54	Median (Q1, Q3)	
Mean (SD)       194.75 (289.99)       178.53 (279.39)       16.22 (10.97, 21.46)         Median (Q1, Q3)       127.97       103.25         (59.75, 246.64)       (50.00, 223.96)         Emergency hospitalization         Mean (SD)       8,631.64 (26,617.57)       8,439.88 (15,797.48)       191.76 (-211.03, 594.54)			(3,993.66, 13,903.74)	(3,802.45, 12,955.00)		
Median (Q1, Q3)  127.97  (59.75, 246.64)  Emergency hospitalization  Mean (SD)  127.97  103.25  (50.00, 223.96)  8,631.64 (26,617.57)  8,439.88 (15,797.48)  191.76 (-211.03, 594.54)					ER visit	
(59.75, 246.64) (50.00, 223.96) <b>Emergency hospitalization</b> Mean (SD) 8,631.64 (26,617.57) 8,439.88 (15,797.48) 191.76 (-211.03, 594.54)	<0.001	16.22 (10.97, 21.46)	178.53 (279.39)	194.75 (289.99)	Mean (SD)	
Emergency hospitalization Mean (SD)  8,631.64 (26,617.57)  8,439.88 (15,797.48)  191.76 (-211.03, 594.54)			103.25	127.97	Median (Q1, Q3)	
Mean (SD) 8,631.64 (26,617.57) 8,439.88 (15,797.48) 191.76 (-211.03, 594.54)			(50.00, 223.96)	(59.75, 246.64)		
Mean (SD) 8,631.64 (26,617.57) 8,439.88 (15,797.48) 191.76 (-211.03, 594.54)					Emergency hospitalization	
	<0.001	191.76 (-211.03, 594.54)	8,439.88 (15,797.48)	8,631.64 (26,617.57)		
Median (Q1, Q3) 5,750.00 5,482.68			5,482.68	5,750.00	Median (Q1, Q3)	
(3,617.92, 12,691.95) (3,489.63, 10,380.43)			•	,		

\*p-values are from a non-parametric (Kruskal-Wallis) test based on distribution, not based on mean difference; †Overall costs per patient available from the database, including administrative fees; <sup>†</sup>Overall cost for all patients, including procedures and administrative fees; <sup>§</sup>Percentage difference; <sup>¶</sup>Physical therapy and psychotherapy. CI, confidence interval; ER, emergency room; Q(1/3), (1st/3rd) quartile; SD, standard deviation.

### Table 3. Summary of HCRU per Person by Study Group

	Migraine (N=22,685)	Control (N=22,685)	Migraine – Control Mean difference (95% CI)	p-value*
Elective consultations Mean (SD) Median (Q1, Q3)	12.73 (10.85) 10 (6, 18)	8.42 (8.81) 7 (3, 13)	4.31 (4.13, 4.49)	0.0204
Elective exams  Mean (SD)  Median (Q1, Q3)	30.61 (29.65) 24 (11, 45)	25.54 (23.89) 20 (9, 40)	5.07 (4.57, 5.57)	<0.001
Complementary therapies <sup>†</sup> Mean (SD) Median (Q1, Q3)	6.59 (12.26) 4 (1, 14)	4.85 (11.17) 4 (1, 12)	1.74 (1.52, 1.96)	<0.001
Elective hospitalizations Mean (SD) Median (Q1, Q3)	0.33 (1.43) 1 (1, 2)	0.30 (1.45) 1 (1, 2)	0.03 (0.003, 0.05)	0.160
ER visits Mean (SD) Median (Q1, Q3)	3.98 (4.84) 3 (2, 6)	2.20 (3.61) 2 (1, 4)	1.78 (1.70, 1.86)	<0.001
Emergency hospitalizations  Mean (SD)  Median (Q1, Q3)	0.14 (1.24) 1 (1, 1)	0.10 (0.86) 1 (1, 1)	0.04 (0.02, 0.05)	<0.001

\*p-values are from a non-parametric (Kruskal-Wallis) test based on distribution, not based on mean difference; †Physical therapy and psychotherapy. CI, confidence interval; ER, emergency room; HCRU, healthcare resource utilization; Q(1/3), (1st/3rd) quartile; SD, standard deviation.

### Conclusion

- The findings from this study demonstrate the burden of migraine on Brazil's healthcare system through increase of direct costs and HCRU
- Implementation of targeted treatments, such as calcitonin gene-related peptide pathway monoclonal antibodies, and improved diagnostic and management protocols may alleviate this burden by reducing the frequency and severity of migraine attacks and potentially limiting the need for frequent consultations, diagnostic tests, and hospitalizations

### Additional results

- The proportion of patients receiving elective and emergency hospitalizations and re-admissions within 30 days was significantly higher for the migraine versus control group, Table 4
- Patients with migraine were ~1.6 times more likely to receive individual psychotherapy and physical therapy sessions than patients in the control group (p<0.001)
- Compared with the control group, patients with migraine were significantly more likely to undergo laboratory tests, neuroimaging, and specific electrophysiological exams (p<0.001)

### Table 4. Specific Metrics for Elective and Emergency Hospitalizations by Study Group

	Migraine (N=22,685)	Control (N=22,685)	Migraine – Control OR (95% CI)	p-value*
Elective hospitalizations, n (%)				
Hospitalization(s)	4,479 (19.74)	4,306 (18.98)	1.05 (1.00, 1.10)	0.0409
Re-admissions in 30 days	825 (3.64)	651 (2.87)	1.28 (1.15, 1.42)	< 0.001
Passage through the ICU	620 (2.73)	621 (2.74)	1.00 (0.89, 1.12)	1.000
Emergency hospitalizations, n (%)				
Hospitalization(s)	2,225 (9.81)	1,775 (7.82)	1.28 (1.20, 1.37)	< 0.001
Re-admissions in 30 days	559 (2.46)	229 (1.01)	2.48 (2.12, 2.89)	< 0.001
Passage through the ICU	620 (2.73)	621 (2.74)	1.00 (0.89, 1.12)	1.000
Surgical hospitalization	688 (3.03)	570 (2.51)	1.21 (1.08, 1.36)	< 0.001

\*p-values are from a Pearson Chi-square test. CI, confidence interval; ICU, intensive care unit; OR, odds ratio.

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