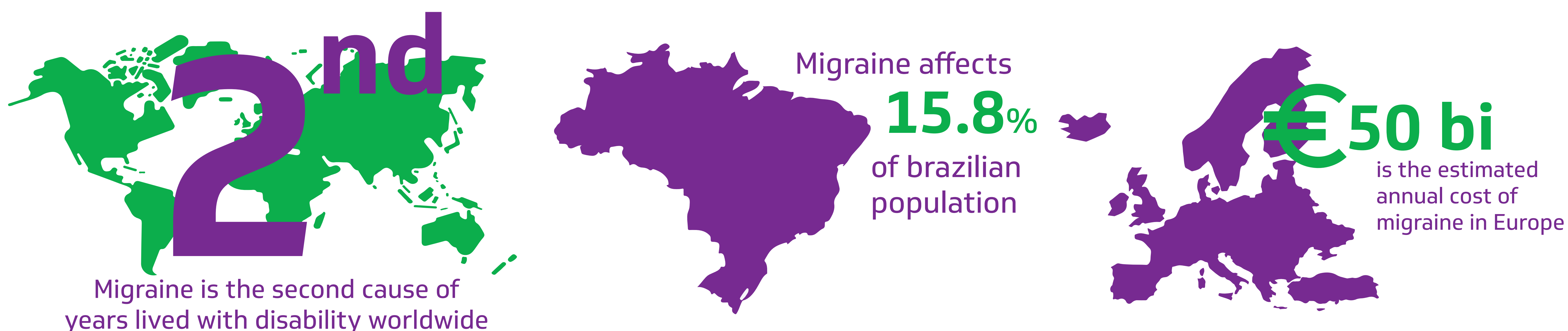


Recurrent visits to the Emergency Department (ED) due to Headache: economic burden and epidemiological profile.

Marcio Nattan P. Souza¹, Marcelo Calderaro¹, Ana Paula D. S. Oliveira¹, Gabriel T. Kubota¹, Lucas S. Zambon¹, Renato Anghinah², Maurício R. Jordão¹,
¹ Hospital Samaritano Higienópolis, São Paulo, Brazil; ² Neurology, United Health São Paulo, Brazil
 E-mail: marcio.souza@samaritano.com.br

Introduction

Migraine is one of the most common and burdensome disorders worldwide and affects over one billion individuals(1). In Brazil it's estimated to affect 15.8% of adult population (2). It was ranked second cause of years lived with disability in the Global Burden of Disease (GBD) 2016 (1). The estimated direct and indirect costs of the disease are over € 50 billion in Europe (3), resulting in a major public health issue. A significant part of the cost is due to emergency department consultations, hospital admissions and diagnostic exams (4).



Objective

Analyzing health resource utilization of patients with headache, admitted to the Emergency Department (ED) of a Tertiary Hospital in Brazil.

Methods

Observational transversal evaluation of patients admitted to the ED from January 1st to December 31st of 2018. Patients with final diagnosis of headache were analyzed and divided in nonrecurrent (one visit to the ED) and recurrent (> 1 visit to the ED). Mean cost of ED visit and hospital admission of each group were evaluated. Statistical analysis used Odds Ratio obtained by the Fisher test, chi square test for independency, Kolmogorov Smirnov test to verify normality, Bartlett test to verify homogeneity of Variances and Mann-Whitney test on R statistics program.

Results

From a total of 117,004 visits of 66,808 consecutive patients admitted to the ED, 3,943 visits (3.4%) of 3,308 patients were due to headache. From these, 424 (12.8%) patients were recurrent, accounting for 1,059 (26%) visits. The mean age was 38.3 (±13.8) years and 73.7% were female. The mean ED length of stay was 3.7 (±2.6) hours and the mean length of hospitalization was 2.6 (± 2.7) days. We found difference in demographic profile, cost per visit and cost per hospitalization between recurrent and nonrecurrent groups (figures 1). The mean cost of ED visit was US\$ 185.27 and the mean cost of inpatient treatment was US\$ 2,181.08. Recurrent patients were more prone to hospital admission with an OR 3.06 (IC 95%: 2,15-4,30, p <0,001), which cost was 11.7-fold higher than the mean cost of ED visit.

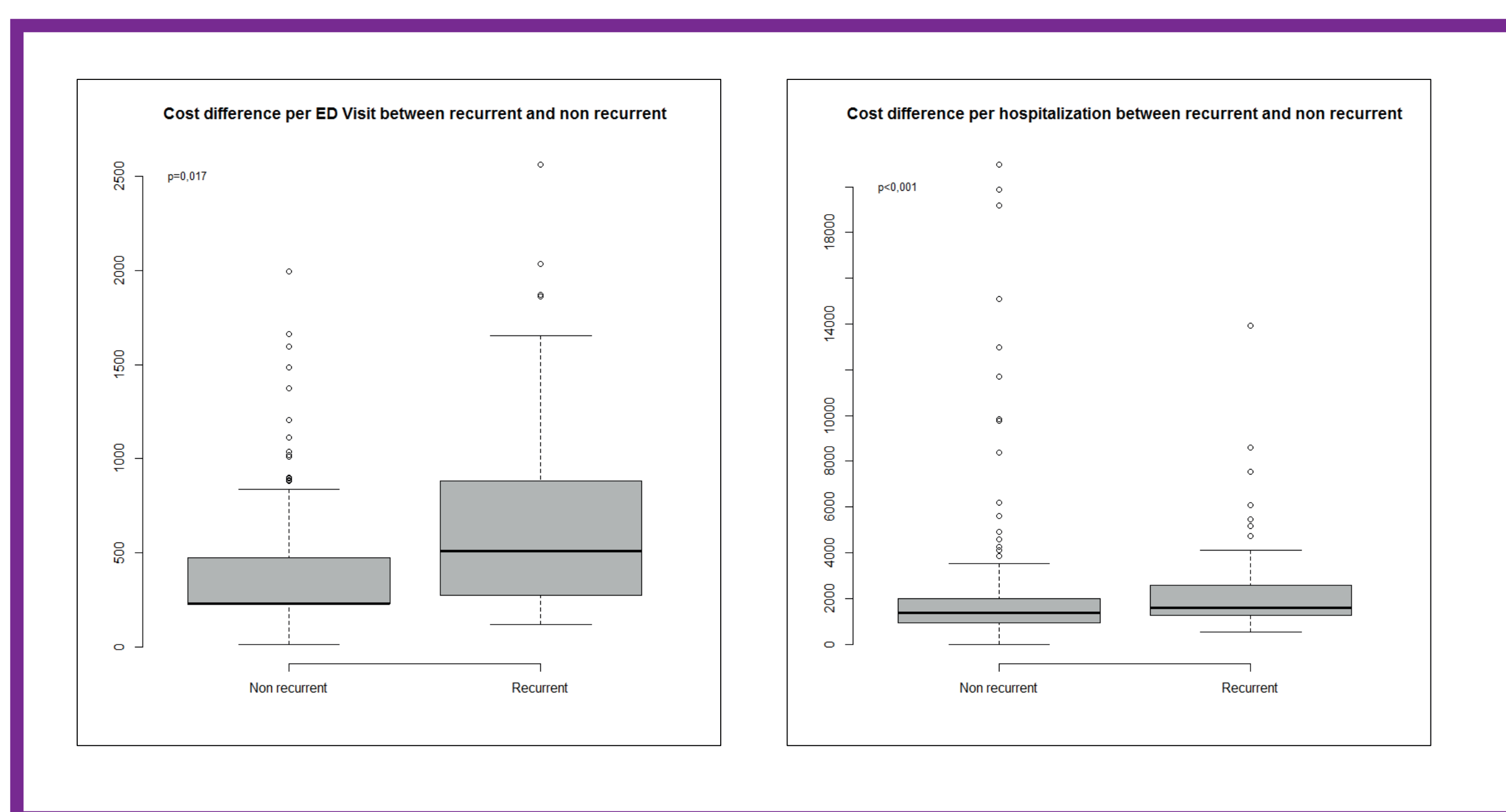


Figure 1

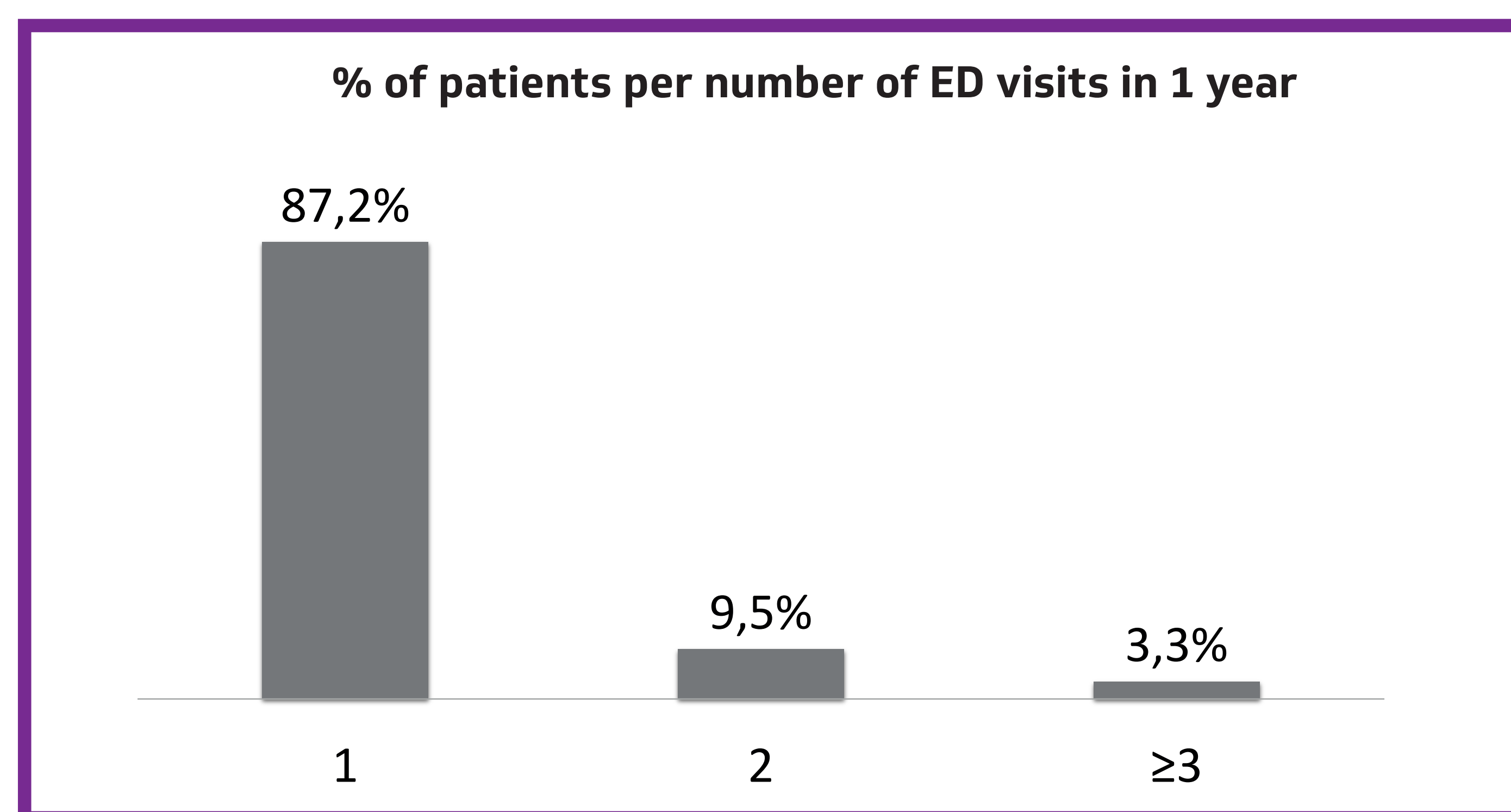
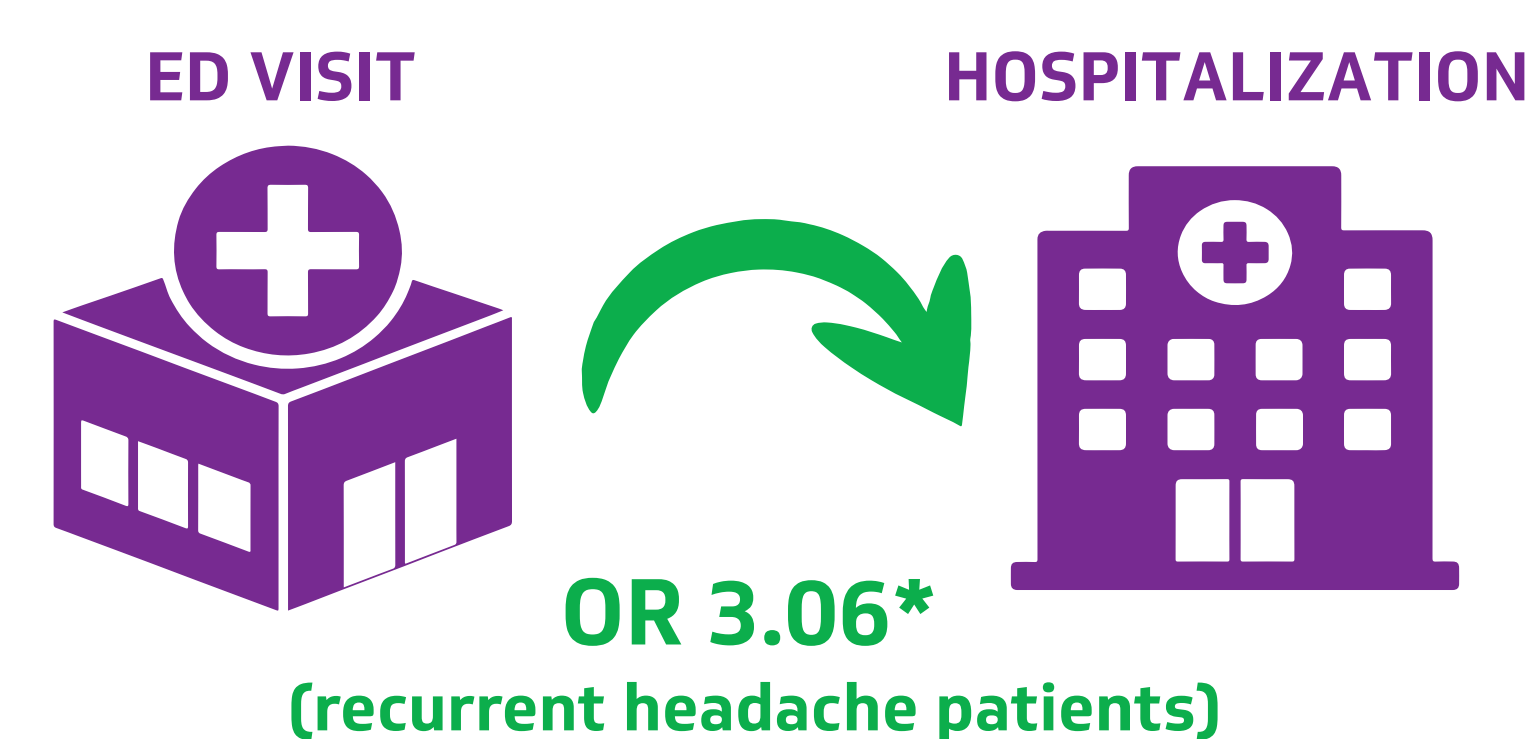


Figure 2

Probability of hospitalization between recurrent and nonrecurrent headache patients admitted to the ED during one year.

	Hospitalization	ED Visit	Total
Recurrent	55 (12%)	369 (87%)	424
Nonrecurrent	134 (4%)	2750 (96%)	2884
Total	189 (6%)	3119 (94%)	3308



Conclusion

We found that patients who recurred to ED for headache consultation over the period of one year, had a higher risk of hospital admission. In agreement with previously published data (4), we identified that inpatient treatment implies higher costs when compared to the ED visit. This data supports the importance of healthcare providers and insurance companies to improve efficiency in headache care, which might be achieved through Integrated Headache Centers (5).

(1) GBD 2016 Headache Collaborators. Global, regional, and national burden of migraine and tension-type headache, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016 | Lancet Neurol 2018; 17: 954–76
 (2) Queiroz, L. P. and Silva Junior, A. A. (2015), The Prevalence and Impact of Headache in Brazil. Headache: The Journal of Head and Face Pain, 55: 32–38.
 (3) Linde, M., Gustavsson, A., Stovner, L. J., Steiner, T. J., Barré, J., Katsarava, Z., Lainez, J. M., Lampl, C., Lantéri-Minet, M., Rastenyte, D., Ruiz de la Torre, E., Tassorelli, C. and André, C. (2012), The cost of headache disorders in Europe: the EuroLight project. European Journal of Neurology, 19: 703–711.
 (4) Insinga, R. P., Ng-Mak, D. S., & Hanson, M. E. (2011). Costs associated with outpatient, emergency room and inpatient care for migraine in the USA. Cephalalgia, 31(15), 1570–1575.
 (5) Diener, H.-C., Gaul, C., Jensen, R., Göbel, H., Heinze, A., & Silberstein, S. (2011). Integrated headache care. Cephalalgia, 31(9), 1039–1047.

