ORIGINAL ARTICLE
ARTIGO ORIGINAL

The impact of patients with generalized anxiety disorder in the Brazilian Private Healthcare System: a claim database study with expert's perspective

O impacto de pacientes com transtorno de ansiedade generalizada no Sistema Único de Saúde: um estudo de base de sinistros com a perspectiva de especialistas

Marco Antonio Silva Moreira Matos[1], Alberto Ogata[2], Celso Mitsuo Gondo[3], Luiz Dieckman[4], Stephen Stefani[5], Teng Chei Tung[6], Elizabeth Bilevicius[1]

DOI: 10.21115/JBES.v15.n1.32-38

Keywords:
anxiety, private setting, economic burden, database, expert opinion

ABSTRACT

This study describes the healthcare resource use and costs associated with anxiety assessing claim database outcomes and expert opinion from the perspective of the Brazilian Private Healthcare System. A retrospective analysis of the Orizon database was conducted, containing claims data of anxiety patients reported in Private Healthcare Systems (2015-2017) according to the ICD-10 code (F40 or F41 and their subtypes). Further, a 3-hour online meeting brought together five anxiety and Health Insurance Companies experts to discuss their perspectives. The total cost of the 18,069 patients identified in the database was BRL 490 million: related to medical appointments (2%), exams (16%), emergency room (5%), and others (77%). The mean number of appointments was 5.1 in a 4-year period, performed by 61% of the patients. Approximately 2,595 visits were made to psychiatrists by 923 patients, and 95% underwent at least one examination (100.6 examinations per patient, on average). The identification of anxiety patients and their corresponding burden is challenging to estimate. The higher impact is related to the frequency of healthcare use before the diagnosis than the treatment itself. These outcomes may help plan and implement adequate healthcare programs for patients with anxiety.

Palavras-chave:
ansiedade, ambiente privado, carga econômica, banco de dados, opinião de especialistas

RESUMO

Este estudo descreve o uso de recursos de saúde e os custos relacionados à ansiedade associando resultados de uma base de dados administrativa e opinião de especialistas na perspectiva do Sistema Privado de Saúde Brasileiro. Foi realizada uma análise retrospectiva da base de dados da Orizon de pacientes com ansiedade em atendimento hospitalizar ou ambulatorial no Sistema Privado de Saúde (2015 - 2017) com o código CID-10 (F40 ou F41 e os seus subtipos), adicionalmente promovemos uma reunião online de 3 horas com cinco especialistas em ansiedade e em seguros de saúde para discutir as suas perspectivas. O custo total dos 18.069 pacientes identificados no banco de dados foi de R$ 490 milhões, relacionados a consultas médicas (2%), exames (16%), pronto-socorro (5%) e outros (77%). A média de consultas foi de 5,1 em um período de 4 anos, realizadas por 61% dos pacientes. Aproximadamente 2.595 visitas foram feitas a psiquiatras por 923 pacientes, e 95% realizaram pelo menos um exame (média de 100,6 exames por paciente. É desafiador identificar e estimar o impacto da doença no Sistema Privado de Saúde Brasileiro. O impacto maior está relacionado à frequência de uso de serviços de saúde antes do diagnóstico, em comparação com o próprio tratamento. Esses resultados podem ajudar a planejar e implementar programas de saúde adequados para pacientes com ansiedade.

Received on: 11/21/2022. **Approved for publication on:** 03/28/2022.
1. Viatris Brazil, São Paulo, SP, Brazil.
2. International Association of Worksite Health Promotion (IAWHP), United Kingdom, London.
3. Healthmit Inteligência Estratégica em Saúde, São Paulo, SP, Brazil.
4. Federal University of São Paulo (Unifesp), São Paulo, SP, Brazil.
5. Unimed Central Rio Grande do Sul, Porto Alegre, RS, Brazil.
6. Medical School, University of São Paulo, São Paulo, SP, Brazil.
Financial support: Viatris funded this study.
Authors' financial disclosures and conflicts of interest: Viatris Brazil funded the expert meetings.
Corresponding author: Marco Antonio Silva Moreira Matos. Av. das Nações Unidas, 12.901, Torre Norte, 10º andar, Brooklin, São Paulo, SP, Brazil. CEP: 04578-910. Telephone number: +55 (11) 99602-9234. E-mail: marco.silva@viatris.com

Introduction

Anxiety disorder is a sustained state of extreme and excessive apprehension, including symptoms such as motor tension and autonomic overactivity, that occurs without clear and immediate danger (Mughal *et al*., 2020; Dattani *et al*., 2021; Hoffman *et al*., 2008). Generalized anxiety disorder (GAD) is a severe chronic illness characterized by symptoms including persistent and uncontrollable worry about everyday life matters, social competence, autonomic hyperarousal, and tension (Madonna *et al*., 2019). GAD affects approximately 5.7% of the American population at some point in life (Hoffman *et al*., 2008) and about 2% of the adult population (Madonna *et al*., 2019). According to the World Health Organization published in 2017, Brazil leads the world in the prevalence of anxiety disorders (de Souza & Machado-de-Sousa, 2017). Data indicate that the number of people suffering from health loss due to anxiety disorders are growing (Yang *et al*., 2021).

Anxiety is associated with a high healthcare cost burden (Yang *et al*., 2021, Stein *et al*., 2017). A study estimated that in 2004 anxiety disorders cost over 41 billion Euros in the European Union (Andlin-Sobocki & Wittchen, 2005). According to the Global Burden of Disease study in 2019, the disability-adjusted life years (DALYs) related to anxiety were estimated in more than 28 million DALYs (Yang *et al*., 2021). Although there has been an increasing interest in studying mental health, such as anxiety, there are still significant gaps related to journey and economic burden data in Brazil, particularly in the private setting.

Comprehensive and accurate anxiety disorder data are the main prerequisites for policymakers to allocate limited resources and formulate policies rationally. Further research is essential to fill the literature gaps and provide high-quality data. This study aimed to describe the profile and economic burden of patients with anxiety, associating the result of the claims database and experts' opinions from the Brazilian Private Healthcare System perspective.

Material and methods

The present study aims to provide a broader vision of the disease burden in the Brazilian Private Healthcare System. A two-step quantitative-qualitative research design was adopted to assess the patient journey, resource use, and costs related to patients with anxiety disorders in Brazil: at first, it was conducted a retrospective analysis of the Orizon database – a reimbursement database of health insurance companies with information on Brazilian private claims. Orizon is a health-tech company with an automated billing system among its services to healthcare providers and operators. The data source used in this study was the billing database of 14 health insurance companies, including self-management, health insurance, group medicine, and cooperatives. An expert meeting was held with physicians with experience in the Private Healthcare System, Healthcare Provider Managers, and Population Health Specialists to assess their understanding of anxiety management and healthcare resource utilization to complement the disease scenario. Ethical approval was unnecessary in alignment with Brazilian ethical Resolution nº 510, 2016 (Conselho Nacional de Saúde, 2016) since this secondary study used anonymized data and physicians' opinions.

Secondary data study from the Orizon database

A retrospective analysis of the Orizon database, containing inpatient and outpatient claims data of a pool of anxiety patients in the Private Health System, was conducted from January 2013 to December 2019. This database contains a date-stamped log of all billed items by the cost-accounting department. It includes demographic information, all outpatient and inpatient procedures, number and type of procedures, diagnosis code using International Classification of Diseases, 10th revision (ICD-10) codes (F40 or F41 and their subtypes), and other additional information. Approximately 25% (~12 million) of Brazilian Private Healthcare System patients are in the database.

Patients were included in the study if they had at least one claim of anxiety reported in the database according to the ICD-10 code from January 1st, 2015, to December 31st, 2017, and filled in pre-defined eligibility criteria. This approach includes mostly patients with acute or severe stages of anxiety disorders since the report of the ICD-10 code is usually identified in inpatient settings or emergency rooms. Despite this limitation, it is currently the only possible approach to capture the economic burden of patients with anxiety in the Brazilian Private Healthcare System.

Patients

Eligible patients had evidence of anxiety disorder (≥1 record with ICD-10 code for anxiety) according to the following ICD-10 codes: F40 – Agoraphobia, F40.1 – Social phobias, F40.8 – Other phobic anxiety disorders, F40.9 – Phobic anxiety disorder, unspecified, F41 – Other anxiety disorders, F41.0 – Panic disorder [episodic paroxysmal anxiety], F41.1 – Generalized anxiety disorder, F41.2 – Mixed anxiety and depressive disorder, F41.3 – Other mixed anxiety disorders, F41.8 – Other specified anxiety disorders or F41.9 – Anxiety disorder, unspecified. Patients whose first claim of ICD-10 of anxiety was between January 1st, 2015, and December 31st, 2017, were included, and the first claim date was defined as the index date.

Exclusion criteria included evidence of a record for anxiety ICD-10 code before January 2015 to exclude patients with previous attendance due to anxiety. Patients with evidence of an inpatient record of pre-specified medication 24 months before the first anxiety ICD-10 code (Supplementary Table 1 – List of pre-defined drugs considered exclusion criteria). Exclude inactive patients in the system for more than

Table 1. Resource uses during four years of patients reporting anxiety ICD-10 codes in Private Healthcare Systems

	Total
Patient (N)	18,069
Medical appointments	
Total number of elective medical appointments, N	56,798
Patients with medical appointments, N (%)	11,060 (61)
Mean of elective medical appointments per patient	5.1
TOTAL NUMBER OF MEDICAL APPOINTMENTS	
Medical specialist	
Ophthalmologist	8,057
Orthopedist	6,806
Cardiologist	5,189
Gynecologist	3,403
Psychiatrist	2,595
Non-medical specialist	
Psychologist	59,007
Physical therapist	21,036
Speech therapist	3,930
Nutritionist	2,765
Occupational therapist	355
TOTAL NUMBER OF PATIENTS WITH MEDICAL APPOINTMENTS	
Medical specialist	
Ophthalmologist	5,248
Orthopedist	3,491
Cardiologist	1,853
Gynecologist	1,974
Psychiatrist	923
Non-medical specialist	
Psychologist	3,506
Physical therapist	2,204
Nutritionist	1,362
Speech therapist	528
Occupational therapist	32
Exams	
Total number of exams, N	1,734.669
Patients performed exams, N (%)	17,245 (95)
Average exams performed per patient	100.6
Emergency room	
Total number of ER visits	117,620
Number of patients with ER visits, N (%)	15,478 (86)
Average ER visits per patient	7.6

24 months before and after the first ICD-10 claim (guarantee the patient uses the private system during the study period).

Outcomes

The retrospective database study evaluated direct medical costs and resources for patients with at least one anxiety claim in the Private Healthcare System between 2015 and 2017. The 4-year period of medical and outpatient costs and services for those patients were analyzed: two years before and two years after the anxiety ICD-10 claim. Costs and healthcare resources include exams, medical appointments, emergency room, surgeries and invasive procedures, and hospitalization. The costs were described in total and stratified by the type of procedures previously mentioned.

Statistical analysis

As an observational cross-sectional secondary database descriptive study, no statistical hypothesis was intended. Only descriptive analysis was performed to describe the data and costs for all patients who reported anxiety ICD-10 code.

The outcomes were summarized as absolute frequencies and percentages (%) for categorical variables and by measures of central tendency and dispersion for continuous variables. Rates were also calculated over the number of patients with available (non-missing) data.

Costs were calculated by summing all billed items and expressed by the mean cost: the total cost per event divided by the number of patients who experienced the event. Costs extracted in Brazilian real (BRL) during the study period (2013-2019) were adjusted by the mean inflation value in 2019 based on the Orizon database applying the net actual value methodology – an international and traditional method.

Expert discussion meeting

A further aim of this study was to explore experts' opinions regarding the journey and healthcare of patients with anxiety in the private setting. In September 2021, an expert meeting was organized to discuss different aspects and characteristics of patients with an anxiety disorder to obtain their opinion regarding the outcomes of the Orizon database study. The meeting gathered five experts in anxiety and representatives of Health Insurance Companies and Population Health Specialists. It was an online meeting with all participants and lasted three hours.

A specific material based on current literature and database outcome was developed to explore the patient journey and resources across the care of patients with anxiety in Brazil. This material served as a guide for the main topics discussed in the meeting: a) Patients' diagnosis and identification in the private setting; b) Healthcare resources with anxiety disorders in private settings; c) Direct costs with anxiety disorders in the private setting. All data and considerations were registered in a formal document prepared for the meeting, and the summary is provided in the current document.

Results

Diagnosis and identification of patients with anxiety in private settings

The database identified 18,069 patients with at least one claim of anxiety ICD-10 code that fulfilled the eligibility

criteria. This number represents about 0,20% of the patients when considering the population in the Private Healthcare System covered by the Orizon database (~9,5 million).

The inputs captured in the meeting highlighted that one of the biggest challenges with anxiety disorders starts with the diagnosis. The sub-notification and sub-diagnosis of anxiety disorders are a consequence of several issues: anxiety is not the main reason for the patient to search for medical care, so physicians commonly identify it during a medical appointment from other complaints or comorbidities, and the healthcare professionals conducting screening are not trained to diagnose anxiety disorders, and it can also be challenging to distinguish from other mental health conditions, such as depression, or even physical diseases. Patients commonly seek a physical pathologist to justify their symptoms. Additionally, stigma impacts the lack of awareness and delays the patient's diagnosis and adequate care. Administrative issues also affect the sub-notification of anxiety disorders because the report of the ICD-10 code is not mandatory in the private setting. ICD-10 code is commonly reported in hospitalization or emergency rooms. However, both situations are not usual in patients with anxiety. Both hospitalization and emergency room due to anxiety are related to a severe or refractory stage of the disease and, most of the time, are associated with other mental disorders.

Healthcare resource use in Private Healthcare Systems

Of the 18,069 patients identified in the database with anxiety claims, 61% (11,060) had at least one medical appointment. The mean number of medical appointments per patient was 5.1 in a 4-year period, regardless of the medical specialty, totaling 56,798 medical appointments (Table 1). Ophthalmology was the primary medical specialty sought for patients, with 8,057 medical appointments for 5,248 patients during the study period, followed by orthopedics, cardiology, gynecology, and psychiatry. The total number of medical appointments per patient in psychiatry was 2,595 for 923 patients.

The experts argued that there is uncertainty over where to go for anxiety treatment and assistance. Thus, it is usual that patients seek several medical specialties to diagnose or treat anxiety. Most patients with anxiety symptoms are not referred for adequate assessment. The low referral rate to psychiatrist evaluation may have resulted from the healthcare professionals' unfamiliarity with anxiety or unawareness of effective treatments for this illness. Additionally, the high number of medical appointments and low proportion of patients attending psychiatrists reflect how the private setting is inefficient and provides a low assistance quality for their patients.

Table 1 also shows the total number of non-medical specialty attendance per patient and the total number of patients performing non-medical specialty during a four-year follow-up, respectively. Psychology was the most non-medical specialty sought by patients, with 59,007 appointments for 3,506 patients, followed by physical, speech, nutritionist, and occupational therapies.

A summary of experts' analyses showed that patients commonly engage with two main types of professionals – psychologists, and psychiatrists when seeking care regarding anxiety disorders. In experts' opinion, although not so frequent, other non-medical specialties might be sought by patients with anxiety due to some signs and symptoms of the disease. For instance, a physical therapist to manage muscular pain or a nutritionist to help control eating disorders. As for their understanding, integrated care between pharmacologic and non-pharmacologic interventions is the best strategy for delivering high-quality services. Still, in the real-world scenario, the link between non-medical and medical specialties is generally weak and noted by the low number of attendances by psychiatrists and psychologists in the private database.

Table 1 also shows the exams performed by patients with anxiety ICD-10 code in a four-year period. A total of 17,245 (95%) patients completed some exams, averaging 100.6 exams per patient. The total of exams performed in the period was 1,734.669. The top 10 and group of exams are listed in Supplementary Tables 2 and 3, respectively.

From the group´s perspective, anxiety can mimic many harmful conditions. An anxiety crisis or panic attack is known as a diagnosis of exclusion. It means that before the doctor is sure of an anxiety crisis-based diagnosis, all other possible causes of the symptoms and other conditions must be considered. No lab tests or scans can diagnose anxiety disorders, so it is common to perform several exams to detect or exclude some comorbidities. In a connected and integrated healthcare system, there would be no need to repeat all the exams. Still, in the current scenario, it is not possible to access the patient's entire medical history; consequently, a new screening can be performed by increasing the number of exams conducted on these patients.

The number of emergency room visits reported by the study population was 117,620 attendances performed by 15,478 (86%) patients, 7.6 visits per patient in a 4-year period, on average (Table 1).

Experts described that going to the emergency room for anxiety is not uncommon but unnecessary in most situations. However, it is essential to consider that patients usually seek treatment or assistance only when anxiety symptoms become severe, disruptive, profound, or unpredictable; they can no longer manage or control them without help. Thus, it is not a surprise the high number of emergency rooms found in the private database. Such data reinforces how much the system is fragmented and how healthcare professionals' inadequate recognition of anxiety disorders may further hinder treatment delivery.

Direct costs with anxiety disorders in the Private Healthcare System

Table 2 shows the costs of medical appointments, exams, and emergency room related to 2 years before and 2 years after the first claim of anxiety ICD-10 code. The total cost of the 18,069 patients identified in the database was BRL 490 million. Of those, BRL 8,49 million was related to medical appointments, BRL 77,91 million to exams, and BRL 27,04 million d to emergency rooms. Other costs include surgery procedures, hospitalization, non-medical attendance, and others.

The real impact of anxiety disorder is underestimated due to the complexity of measuring this disease's cost. The burden of the illness would be relatively low, involving only medical appointments with psychiatrists and non-medical specialties such as psychologists and, in some cases, other non-medical specialties. However, the fragmented framework and assistance in private settings associated with diagnosing anxiety results in another reality – patients intensively using healthcare resources, searching for different medical specialties and help, performing several exams, and seeking emergency rooms. Thus, the economic impact is more significant due to the high frequency of patients using healthcare resources to diagnose or solve their health problems rather than treating the disease.

Table 2. Total costs during four years of patients reporting anxiety ICD-10 codes in the Private Healthcare System

	Total
Patients (N)	18,069
Medical appointments	
Cost	BRL 8.49 million
Exams	
Cost	BRL 77,91 million
Emergency room	
Cost	BRL 27.04 million

Discussion

This study aimed to assess the impact of anxiety in the Brazilian Private Healthcare System, describing a cross-sectional scenario of medical and non-medical appointments, exams, and emergency visits during a 4-year period. A total of 18.069 patients presented at least one anxiety claim between January 2015 and December 2017. Not all identified resources and costs are directly associated with anxiety disease management. Still, it is possible to assume that these patients demand a great use of private healthcare resources due to the high attendance frequency.

Clinical experts are essential to provide context to the evidence and aid in its interpretation. Based on that, this study combined the private claim database (Orizon) with an expert opinion meeting to improve the understanding of anxiety disorder and its impact in the private setting. Outcomes pointed out how challenging it is to diagnose and treat anxiety in Brazil. The fragmented framework system linked with social stigma and unprepared professionals leads to a sub-diagnosis, sub-notification, and an overuse of healthcare resources, potentially impacting the disease's costs. This statement is reinforced when we observe the high number of laboratory and clinical exams or medical specialist appointments in the present study. It indicates that the system is not integrated and has no follow-up or specialty referral. The healthcare problem of fragmentation is a well-characterized and described situation worldwide (Stangt, 2009).

Studies demonstrated that anxiety disorders have become a major clinical and public healthcare problem. They estimate that over 264 million people experienced an anxiety disorder in 2017 (Mughal *et al.*, 2020), with the global prevalence for anxiety disorders around 7.3% (Stein *et al.*, 2017). This study found a low proportion of anxiety patients – less than 0.20%, contrasting with published data. Several factors could contribute to the misleading number of patients within the Orizon database, including the limited accuracy in identifying anxiety patients in the administrated database.

Diagnosis of anxiety is not adequately performed (Bandelow & Michaelis, 2015). It was described that 45% of patients suffer from symptoms for two years or more before the correct diagnosis (Bandelow & Michaelis, 2015), and 50% of patients with mental disease were misdiagnosed when presenting somatic complaints or chronic medical issues (Katon *et al.*, 1990). So, the coexistence of one or more medical illnesses with anxiety makes an accurate diagnosis even more difficult (Katon *et al.*, 1990). Therefore, anxiety is considered an exclusion diagnosis – in which the medical professional should previously rule out other medical disorders. Indeed, we found many exams, including ECG and echocardiogram, since cardiac alterations might be easily confounded with symptoms of anxiety crisis., Medical appointments and emergency rooms suggest the lack of training of healthcare professionals leads to frequent use of resources.

With low costs and healthcare resources, anxiety disorders can be treated successfully with adequate medication and psychological therapies (Bandelow & Michaelis, 2015). According to the specialists consulted anxiety patients' economic burden lies in overutilizing healthcare resources. We observed a low rate of private users seeking psychiatric attendance (~5%) and many other medical specialty attendances. Ophthalmology was pointed out as the medical specialty with more appointments in the private database, followed by orthopedy and cardiology, and psychiatry was only the fifth. Many assumptions could be raised, including previously pointed ones, such as the lack of correct diagnosis

and follow-up, the fragmented healthcare system, and the fact that patients could be under routine follow-up. Indeed, patients with anxiety are typically denominated as high healthcare users – extensive and expensive healthcare use (Andlin-Sobocki & Wittchen, 2005; Lecrubier, 2001).

Mental disorders, such as anxiety, may cause considerable health impacts with low direct cost. Although indirect costs were not assessed in the present study, anxiety disorders have been associated with substantial costs to society because of the bulk of economic impact due to lost productivity or premature retirement (Andlin-Sobocki & Wittchen, 2005). Objectively estimating the direct and indirect disease burden is challenging, and a comparative analysis is not possible, especially because some studies showed that changing trends of anxiety burden vary significantly from country to country and region (Yang *et al.*, 2021).

Our study has some limitations that should be highlighted. The source of data (Orizon database) is an administrative database and includes limited clinical information, which may be prone to errors and underestimate actual costs. The methodology adopted might not reflect the moment of diagnosis, and a selection bias could have impacted the data since the ICD-10 code is usually reported in hospitalization and emergency room. Although this method identified mainly patients with an intense disease, it is impossible to characterize or graduate anxiety using a reimbursement database. So, this is the best approach for detecting anxiety patients and describing their economic impact. Since it is impossible to link all procedures performed with the respective ICD-10 code, the resources and costs reported in the present study reflect not only the anxiety cost but also the general healthcare cost for patients with anxiety. Although all specialists were carefully chosen to represent the real-world practice of anxiety disease management, the small number of expert physicians might not reflect all national physician opinions.

This study provides a unique opportunity to examine private healthcare billings associated with physicians' self-reported anxiety management and its barriers and gaps in the Private Healthcare System. Detecting patients with anxiety and their corresponding burden is challenging to estimate. The outcomes indicate that the most significant impact is related to the frequency of healthcare use before diagnosis rather than the treatment itself. Together, these outcomes may help plan and implement adequate healthcare access and management program for patients with mental disorders, such as anxiety.

Acknowledgment

We thank Viatris Brazil for all their support.

References

Mughal AY, Devadas J, Ardman E, Levis B, Levis B, Go VF, et al. A systematic review of validated screening tools for anxiety disorders and PTSD in low to middle-income countries. BMC Psychiatry. 2020;20(1):1-18.

Dattani S, Ritchie H, Roser M. Mental health [Internet]. WHO. 2021. Available from: OurWorldInData.org

Hoffman DL, Dukes EM, Wittchen HU. Human and economic burden of generalized anxiety disorder. Depress Anxiety. 2008;25:72-90.

Madonna D, Delvecchio G, Soares JC, Brambilla P. Structural and functional neuroimaging studies in generalized anxiety disorder: A systematic review. Braz J Psychiatry. 2019;41(4):336-62.

de Souza IM, Machado-de-Sousa JP. Brazil: World leader in anxiety and depression rates. Rev Bras Psiquiatr. 2017;39(4):384.

Yang X, Fang Y, Chen H, Zhang T, Yin X, Man J, et al. Global, regional and national burden of anxiety disorders from 1990 to 2019: results from the Global Burden of Disease Study 2019. Epidemiol Psychiatr Sci. 2021;30:1-11.

Stein DJ, Scott KM, Jonge P, Kessler RC. Epidemiología DialoguesClinNeurosci-19-127. Dialogues Clin Neurosci. 2017;19(2):127-36.

Andlin-Sobocki P, Wittchen HU. Cost of anxiety disorders in Europe. Eur J Neurol. 2005;12(Suppl 1):39-44.

Conselho Nacional de Saúde. Resolução nº 510, de 7 de abril de 2016 [Internet]. Available from: http://conselho.saude.gov.br/resolucoes/2016/reso510.pdf

Stangt KC. The problem of fragmentation and the need for integrative solutions. Ann Fam Med. 2009;7(2):100-3.

Bandelow B, Michaelis S. Epidemiology of anxiety disorders in the 21st century. Dialogues Clin Neurosci. 2015;17(3):327-35.

Katon W, Von Korff M, Lin E, Lipscomb P, Russo J, Wagner E, et al. Distressed high utilizers of medical care. DSM-III-R diagnoses and treatment needs. Gen Hosp Psychiatry. 1990;12:355-62.

Lecrubier, Y. The burden of depression and anxiety in general medicine. J Clin Psychiatry. 2001(62) Suppl 8:4-9; discussion 10-1. Available from: https://pubmed.ncbi.nlm.nih.gov/12108821/

Supplementary material

Supplementary Table 1. List of pre-defined drugs considered as exclusion criteria

Alprazolam	Clomipramine	Escitalopram	Lorazepam	Sertraline
Amitriptyline	Clonazepam	Phenelzine	Nefazodone	Tranylcypromine
Buspirone	Clorazepate	Fluoxetine	Nortriptyline	Trazodone
Befloxatone	Chlordiazepoxide	Fluvoxamine	Oxazepam	Venlafaxine
Citalopram	Diazepam	Imipramine	Paroxetine	Vilazodone

Supplementary Table 2. Top 10 exams performed

	Number of exams performed	Ranking
Exams		
Conventional ECG	22,338	1st
Full abdominal US	12,887	2nd
X-ray – Thorax	11,499	3rd
Transthoracic Doppler echocardiogram	10,774	4th
Ultrasound – Surface organs	6,965	5th
X-ray – Thorax	6,092	6th
MRI – Articular cartilage	5,597	7th
Colored Doppler venous lower limbs	5,470	8th
Colored Doppler of isolated structures	4,993	9th
MRI – cervical, lumbar, or dorsal	4,967	10th

Supplementary Table 3. Top 10 groups of exams performed

	Number of exams performed	Ranking
Laboratory	1,418.844	1st
Imaging exams	213,430	2nd
Specific exams	75,593	3rd
Electrophysiology	49,505	4th
Anatomical pathology	38,711	5th
Diagnoses	9,632	6th
Endoscopy	5,690	7th
Nuclear medicine	4,527	8th
Colonoscopy	2,324	9th
Genetic	206	10th