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Factitious disorder imposed on self: a retrospective study of 2232 cases from health insurance databases

Running title: Factitious disorder imposed on self: a study of 2232 cases

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Abstract

Objective: Patients with factitious disorder imposed on self (FDIS) seek medical care for deliberately falsified problems. Although a large amount of work has been published, the scientific literature lacks robust data on FDIS. The present study aimed to estimate the annual mean of in-hospital FDIS codings in France, describe the sociodemographic characteristics of subjects with FDIS, assess healthcare utilisation and medical nomadism, and describe the pathologies most frequently associated with FDIS.

Method: Subjects with at least one coding of FDIS in French health insurance databases between January 1, 2009, and December 31, 2017 were included. Subjects younger than 18 years of age at the time of first coding were excluded from the study. Sociodemographic data of subjects and diagnoses associated with the first coding of FDIS were collected. Healthcare utilisation and medical nomadism were analysed descriptively from one year before to one year after the first FDIS coding.

Results: 2232 subjects were included, representing an average of 248 new in-hospital FDIS codings per year. The subjects included were 58.2% female. The mean age at diagnosis was 48.5 years. In the year following the first coding of FDIS, 1268 subjects (56.8%) were re-hospitalised at least once, including 159 (7.1%) with at least one new coding for FDIS. From one year before to one year after the first coding of FDIS, 66% of the subjects included had received at least one prescription for benzodiazepines, 58.3% for antidepressants, and 42.6% for antipsychotics.

Conclusions: Our findings bring new data working towards a better understanding of FDIS. The consumption of psychotropic drugs is particularly frequent in patients with FDIS.

Keywords

Deception; Factitious disorder; Health Expenditures; Malingering; Medically Unexplained Symptoms; Munchausen syndrome.

1. Introduction

Factitious disorder imposed on self (FDIS) is a psychiatric disorder characterised by conscious deceptive behaviour on the part of individuals who are unaware of the motivations leading to this behaviour. This deception consists in seeking medical care by presenting artificial manifestations such as symptoms or signs of unintentional origin, that is to say by hiding their falsified nature. These manifestations are usually physical symptoms or signs, but can also be psychological. They can be reported, simulated and/or induced [1].

Unlike malingers, the behavioural motivation of patients with FDIS is not the search for concrete and clearly identifiable benefits [2]. The FDIS could be based on the need to present oneself as sick in order to receive attention, to manipulate the medical profession by producing manifestations whose etiological diagnosis will prove difficult, or even to feel a certain exhilaration due to the medical procedure carried out [3,4].

FDIS is often a difficult diagnosis. Some data may help to evoke it. Multiple surgeries are sometimes seen in medical history of patients with FDIS, and are even one of the characteristics of Munchausen's syndrome. This classic and severe form of FDIS, first described in 1951, predominantly affects men, unlike the common form of FDIS. Subjects with Munchausen's syndrome tend to mythomania, self-aggrandizing lies (*pseudologia fantastica*) and peregrination, i.e. to consult in new places while concealing their medical history [5]. In addition, psychiatric comorbidities seem to be frequent in FDIS, but are probably underestimated in these subjects who tend to refuse psychiatric care [6]. The FDIS diagnosis is often preceded by stays in the same institution for reasons already suggestive of FDIS [7].

In general, it seems that FDIS is rarely limited to a single and brief episode during the course of life, but often takes the form of repeated demands for medical care, either with the same or with different presentations. In some cases, this repeated use of care can reach extreme proportions [8–11]. These chronic forms raise the question of healthcare utilisation, associated cost and iatrogeny during FDIS. Early diagnosis of FDIS could limit these medical and economic effects, but is hampered by the lack of knowledge about the disease [12]. Indeed, the known data on FDIS are mainly based on case series with limited numbers, and on a multitude of case reports which are not necessarily representative of the entire disorder. The scientific literature therefore lacks robust data on FDIS.

Our primary objective was to estimate the annual mean of in-hospital FDIS codings in the general population, through a large nationwide observational study. Secondary objectives were to describe the sociodemographic characteristics of patients with FDIS, to assess healthcare utilisation and medical nomadism, and to describe the pathologies most frequently associated with FDIS.

2. Methods

2.1. Study design

This study was conducted using the French National Health Insurance database (*Système National des Données de Santé* [SNDS]) [13–15] and followed the REporting of studies Conducted using Observational Routinely-collected health Data guidelines [16]. The database covers 98.8% of the population living in France (approximately 68 million inhabitants) and contains exhaustive data on all reimbursements for health-related expenditures, including dispensed drugs with date of dispensation, as well as any investigations (imaging, surgery, blood analysis, etc.), and individual anonymous data on sociodemographic characteristics (age, sex, area of residence, death). Information about all hospitalisations in a public or private hospital is also provided, including diagnoses (using International Classification of Diseases 10th revision [ICD]-10 codes) and drugs prescribed during hospital stays. Severe, costly, long-term diseases are recorded, with diagnoses coded according to ICD-10, because they give entitlement to 100% health insurance coverage.

2.2. Study Population

The subjects included were individuals identified in SNDS in whom the coding F68.1 (Intentional production or feigning of symptoms or disabilities, either physical or psychological [factitious disorder]) was recorded at least once during a hospitalisation between January 1, 2009 and December 31, 2017 (9 years). The observation period began on January 1, 2008, and subjects in whom F68.1 was coded between January 1, 2008 and December 31, 2008 were not included in the study. The F68.1 diagnosis could be the main diagnosis for hospitalisation or an associated diagnosis. Subjects younger than 18 years of age at the time of first diagnosis were excluded from the study.

2.3. Data collection

The age at diagnosis and gender of the subjects were collected. The location of the first FDIS coding was recorded: medicine, surgery, obstetrics (MSO), psychiatry, follow-up care and rehabilitation or hospitalisation at home with, each time, the length of stay corresponding to this first diagnosis. The number of F68.1 diagnoses carried in the year following the first coding was collected. The diagnoses associated with the first diagnosis of FDIS in MSO were counted.

The healthcare utilisation of subjects with FDIS was analysed from one year before to one year after the first FDIS coding, that is to say two years around the first coding. For each subject included, we studied the utilisation of certain classes of drugs (number of patients having received at least once opioid analgesics, non-opioid analgesics, antiepileptics, antipsychotics, anxiolytics, antidepressants, benzodiazepines, buprenorphine and methadone); the number of stays in MSO and psychiatry; the number of emergency room visits; the number of imaging examinations (MRI, CT, scintigraphy, ultrasound) out of hospital or on an outpatient basis; the number of blood tests out of hospital; the

number of medical consultations in hospital and out of hospital, and the number of paramedical consultations out of hospital; the number of independent doctors consulted out of hospital; the number of separate pharmacies and hospitals visited; the number of French administrative departments and regions visited. The type of specialists consulted out of hospital during the same period was studied.

2.4. Statistical analysis

Descriptive statistics were computed. Categorical variables were presented as numbers with the corresponding percentages. Quantitative variables were presented as means with standard deviations, medians and interquartile range.

2.5. Ethics / data protection

The study was conducted in accordance with all relevant regulatory requirements. The study received a favourable feedback from the Expert Committee for Research, Studies and Evaluations in the Field of Health (*Comité d'expertise pour les recherches, les études et les évaluations dans le domaine de la santé*) on May 21, 2019. The implementation of the project was authorised by the French national data protection agency (*Commission nationale de l'informatique et des libertés*) on July 11, 2019 (decision DR-2019-183).

3. Results

A total of 2232 subjects were enrolled, an average of 248 patients per year. France had around 55 million inhabitants 18 years and over during our study period [17], resulting in a rate of around 4.5 new in-hospital FDIS codings per million adults per year. The general characteristics of the subjects included are listed in Table 1. Among the 1620 individuals with one or more long term disease(s) with 100% health insurance coverage, the majority (864) were due to psychiatric conditions.

The first diagnosis of FDIS was made in MSO for 1550 subjects (69.4%), in psychiatric settings for 475 subjects (21.3%), in follow-up care and rehabilitation for 199 subjects (8.9%), and home hospitalisation for 8 subjects (0.4%). The first hospitalisation related to FDIS lasted on average 8.1 days in MSO and 27.8 days in psychiatry.

In the year following the first coding, 1268 subjects (56.8%) were re-hospitalised at least once, including 159 (7.1%) with at least one new F68.1 coding. Of these, 10 were coded F68.1 at least 5 times.

Healthcare utilisation from one year before to one year after the first diagnosis of FDIS is described in **Table 2**. Excluding the stay for the first coding of FDIS and chemotherapy, radiotherapy and dialysis sessions, the cumulative number of days of hospitalisation over this two-year period, all durations

combined, was on average 26.5 days in MSO and 46.3 days in psychiatry. On average, the subjects experienced 6.8 visits to the emergency room over the same period.

The specialties consulted in private practice are listed in **Table 3**. The diagnoses most frequently associated with the first diagnosis of FDIS, as main diagnosis or significant associated diagnosis, are listed in **Table 4**.

4. Discussion

In this study based on health insurance data, we described the annual mean of in-hospital FDIS codings in the general population, the socio-demographic characteristics of the subjects included and the pathologies associated with FDIS at diagnosis. We also analysed healthcare utilisation and medical nomadism over a two-year period for each included subject. The strength of our study lies in the recruitment of the study population from almost the entire French population and in the size of the resulting sample, representing 2232 subjects with FDIS. It provides new data for a better understanding of the disorder.

Our estimated annual number of FDIS codings is not an overall incidence, as F68.1 coding is only carried out in hospitals and therefore excludes all outpatients. In hospitals at least, our results confirm the rarity of FDIS diagnosis, with an annual mean of only 248 new codings (4.5 per million adults per year). In Germany, a mean of 332 codings per year were recorded in somatic hospitals from 2008 to 2016 in the general population, representing a coding rate of 4.1 per million inhabitants per year [18]. Even though the respective methodologies were slightly different, these results seem remarkably close. A large variability in the profiles of subjects with FDIS appears from the existing literature. FDIS affects both male and female individuals, although there is a predominance of female individuals, now well recognised after the DSM long considered the opposite [19]. In this respect, our results, showing 58.2% women, appear more nuanced than those of most other studies. In a recent study in the United States, 73.5% of the 13,330 individuals with FDIS were female [20]. Studies on small samples have sometimes shown an even more pronounced female predominance (up to 95%) [21]. Previous work has demonstrated that FDIS can occur regardless of family or marital status [22], and in urban as well as in rural areas [23]. Health-related occupations are common among individuals with FDIS, but this fact should not lead to the misdiagnosis of FDIS in health professionals, nor should it lead to the exclusion of this diagnosis in individuals who do not work in this environment. The latter could actually constitute the majority of the patients [7]. All age categories are involved, as confirmed by our results, where the age distribution was relatively balanced. Yet, the presence of 20% of subjects over 65 years of age is surprising in comparison with prior literature. In an extensive review of the literature, the average age was 34.2 years [12]. In several samples, the mean age was between 30 and 40 years [7,21,24–28], and in many of these, the oldest subject was under 65 [7,21,24–26]. In one series of 49 patients, 82% were

aged 40 or under [6]. In fact, only one recent publication seems to support the idea that FDIS affects elderly patients to such an extent: in the previously mentioned study based on 13,330 patients, 36.1% of them were over the age of 65 [20]. It is possible that the small samples of subjects with FDIS favoured the inclusion of cases where the diagnosis seemed most certain, and that patient recruitment was thus influenced by the common idea that FDIS affects young subjects. Larger studies may be more efficient at identifying elderly subjects with FDIS. Another hypothesis is that the epidemiology of FDIS has changed over time and that it now affects older patients. Some publications attribute FDIS not only to individual psychological factors, but also to socio-cultural ones. In particular, it has been suggested that the medicalisation of life and the victimhood culture may have favoured the growth of FDIS [29]. This could explain why FDIS used to spare elderly patients.

In our study, a minority of FDIS cases was diagnosed in psychiatry (21.3%). A systematic review of published FDIS cases found only 18.5% of FDIS with a psychiatric presentation [22]. These results show that FDIS occurs more often in a somatic form. This is the paradox of FDIS, a psychiatric disorder with which non-psychiatrists are more often confronted than psychiatrists. Whatever its presentation, the diagnosis of FDIS is particularly difficult. Because evidence of deceptive behaviour is rare, the diagnosis is often based on a cluster of arguments. The diagnosis of FDIS is rarely sufficient to put a definitive end to the disorder, as shown elsewhere by the significant frequency of new referrals to care in relation with FDIS in patients who had already been diagnosed [7]. For the time being, FDIS management remains to be optimised.

We studied healthcare utilisation during FDIS over a two-year period, from one year before the first FDIS coding to one year after. We chose to collect data even before the first FDIS coding because of the difficulty in making the FDIS diagnosis, which often leads to its delay. In our view, it is possible that the use of care in the year preceding a first coding of FDIS is already part of the disorder, but that it is coded in forms that disguise the FDIS. Moreover, it is not excluded that other FDIS codings took place before the beginning of our study period. Our choice has consequences for the interpretation of our results: it is likely that healthcare utilisation over the two-year period evaluated is not only related to FDIS, but also to other pathologies affecting the subjects included. Indeed, it should never be forgotten that patients with FDIS may seek care for non-simulated medical problems. However, it was not possible to define a list of pathologies in the form of which FDIS would never hide, and which could therefore have been excluded from our analysis. In fact, all areas can be affected by deceptive behaviour, even oncology [7,12,22,30–32].

Therefore, healthcare utilisation studied here should be considered as the overall care utilisation of patients with FDIS, and not as the utilisation of care due to FDIS alone. It is a global vision of healthcare utilisation of these patients. In this respect, our data contain interesting results. The use of psychotropic drugs, in particular, is important: over the two years of evaluation, 66% of the subjects received at least

one prescription for benzodiazepines, 58.3% for an antidepressant, and 42.6% for an antipsychotic. For comparison, in 2015, about 13.4% of the French population had used at least once a benzodiazepine regardless of the indication [33], and in 2010, 6% of the French population had taken antidepressants and 0.8% antipsychotics [34]. These psychotropic prescriptions could correspond to cases of FDIS disguised as psychiatric disorders or reflect a diagnostic bias, as doctors might more easily suspect FDIS in patients with a psychiatric history [35]. However, it seems more likely that they are explained by a high prevalence of psychiatric comorbidities in subjects with FDIS. Indeed, FDIS has been associated with a variety of psychiatric conditions, including mood disorders, anxiety disorders, personality disorders and substance abuse [6,12,36]. Psychoses appear to be rare, but the high rate of antipsychotic prescriptions in our results may reflect the use of atypical antipsychotics in the treatment of personality disorders and depression. Overall, FDIS patients with no psychiatric comorbidity seem to be very rare [6]. Thus, the same interpretation can be raised regarding the consultation of a psychiatrist by 27.7% of our population. This last result may even seem low given that 38.7% of the subjects included suffered from a psychiatric condition with 100% health insurance coverage. Furthermore, 59.1% of our population had received opioid analgesics, whereas in 2015, only 17.1% of the French population had received an opioid analgesic on prescription [37]. In the present study, it is unclear whether these prescriptions were made in response to FDIS or because of another pathology requiring analgesic treatment. Previous work has shown a strong association between drug abuse and Munchausen's syndrome [38]. Although patients with FDIS may have conditions that legitimately require the prescription of opioid analgesics, it was suggested that opioid prescriptions are primarily the result of deception in patients with FDIS [38]. In these circumstances, it can be difficult to distinguish between FDIS and malingering, but if a patient continues to play the sick role despite receiving opioids, the diagnosis of FDIS should be given priority. In addition, the frequency of antiepileptic prescriptions in our study (40%) seems very high compared to the prevalence of epilepsy in France (0.5 to 1% of the population [39]). Some of these prescriptions may be directly linked to FDIS, as numerous cases of factitious epilepsy have been reported in the literature, sometimes resulting in antiepileptic treatment [40]. Moreover, this result may be explained by the frequent use of antiepileptic drugs in psychiatry, as a treatment for bipolar disorders but also in many off-label indications, such as lamotrigine in borderline personality disorders [41–44]. Therefore, this result could, once again, reflect the frequency of psychiatric comorbidities in FDIS.

Our work identified a small proportion of subjects with a high level of healthcare use (11.5% of subjects with more than 10 hospitalisations, for example) or who had consulted several times in distant locations (4.1% of patients being hospitalised in at least 3 regions, in particular). These results suggest that peregrination is rare, even within the FDIS population, and are consistent with claims that Munchausen syndrome represents only a small proportion of FDIS epidemiology [27,45]. Although rare, these behaviours may have serious consequences for the healthcare system or for the patients themselves.

Many case reports describe individual histories of extensive healthcare utilisation. One patient underwent 42 surgical procedures and visited 650 different hospitals [8]. Complications following intoxication cost more than a million dollars for another person [9]. One patient with FDIS died after 41 hospital admissions in many Italian cities and even abroad [10]. Another required 19 endotracheal intubations for dyspnoea with severe stridor [11]. Early detection of FDIS is difficult in these peregrinating patients. Centralising the diagnoses of FDIS could help, but it could also lead to the stigmatisation of all patients with FDIS. As a result, one could fear that they may not be properly cared for when they seek care for reasons other than FDIS. In our view, physicians should focus on the early identification of warning signs, such as normal tests, atypical presentation or inconsistent history. Current literature suggests that this approach should be applied regardless of the patient's socio-demographic characteristics, as FDIS is encountered in all populations.

There are some limitations to our study. First, there is a selection bias because subjects were included based on F68.1 coding, and coding errors are possible [46]. Given the size of our population, it was not possible to limit this bias by verifying that the diagnostic criteria of FDIS defined by the DSM-5 were all met, in particular the absence of obvious external rewards [1]. Moreover, our results show a predominance of psychiatric diagnoses among the diagnoses associated with FDIS codings, whereas the fourth DSM-5 criterion requires that “the behavior is not best explained by another mental disorder.” [1] It is therefore possible that patients with another diagnosis were included, although psychiatric associated diagnoses could simply be comorbidities associated with FDIS. In addition, F68.1 coding may have been used in cases of factitious disorder imposed on another (FDIA). In the latter case, it is a third party who is at the origin of the fictitious manifestations, and not the person himself [2]. We limited this bias by excluding patients younger than 18 years of age at first diagnosis, but some vulnerable adult victims of FDIA may have been included. On the other hand, true cases of FDIS may have been coded as simulations (Z76.5) and therefore not identified in our study. Regardless of these coding limitations, it is possible that other individuals with genuine FDIS were not included because of the difficulty, already mentioned, in affirming the diagnosis of FDIS. This difficulty is common to all research on the subject. In some cases, the hypothesis of FDIS is raised but, out of caution, practitioners do not formally conclude the diagnosis, despite sometimes strong evidence [28]; in other cases, deception is not suspected and the hypothesis is therefore not even considered. It has also been suggested that the known cases of FDIS are in fact only the part of them where the patients were least able to hide the deception, or where the doctors were most able to detect it [12].]. It is likely that these cases represent the most severe and/or typical forms of FDIS (subjects with a health-related profession, with psychiatric comorbidities...). This could be a significant source of non-inclusion in our study, and also affect its representativeness. Overall, we believe that the sources of non-inclusion far outweigh the risk of F68.1 overcoding. There is therefore a probable underestimation of the number of FDIS cases in our study. In the previously mentioned U.S. study, the prevalence of FDIS was 0.024% in the clinical setting over an

18 year period [20]. Interestingly, one study estimated the prevalence of FDIS to be 1.3%, using practitioners' own estimates of the prevalence of the disorder among their patients [47]. In our opinion, the difference between these results reflects the gap between the number of suspected FDIS cases and actual diagnoses of FDIS.

Second, some of our results raise difficulties of interpretation. Diagnoses associated with FDIS, in particular, may correspond either to diseases induced by patients with FDIS, or to comorbidities not directly related to FDIS. Although some diagnoses are strongly suggestive of induced disease (eg, the 9 cases of iron deficiency anemia, suggesting possible cases of induced bleeding [48]) and others more suggestive of independent pathologies (eg, high blood pressure), it is rarely possible to say with certainty the exact link of each associated diagnosis with FDIS.

Third, despite the common ideas of chronicity and peregrination associated with FDIS, almost 30% of patients experienced no or only one hospitalisation beyond that associated with the first FDIS coding. It is possible that our 2-year period of assessment of healthcare utilisation was too short to properly study these behaviours. Other study designs might be more effective in this respect.

Our study could be followed by further work on the subject. In particular, the analysis of healthcare utilisation could be complemented by research, via a comparative approach, for the existence of an overutilisation of care of patients with FDIS compared to the general population. Overutilisation of care is already used as an index to the diagnosis of FDIS [12], but is not scientifically proven. Its detection would encourage greater vigilance once the diagnosis of FDIS is made, both to reduce the potential iatrogeny and the associated costs.

Declaration of interest

Conflicts of interest: none.

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Tables

Table 1. Characteristics of subjects with FDIS (n = 2232)

Gender – number (%)	
Male	934 (41.8%)
Female	1298 (58.2%)
Age at diagnosis – years	
Mean (SD)	48.52 (19.7)
Median	46
Interquartile range	33 – 61
Age group at diagnosis – number (%)	
18 – 25 years	281 (12.6%)
25 – 45 years	815 (36.5%)
45 – 65 years	689 (30.9%)
> 65 years	447 (20.0%)

Table 2. Healthcare utilisation of subjects with FDIS, from one year before to one year after the diagnosis of FDIS (n = 2232)

Medication	Subjects who received the drug class at least once - number (%)	
	Opioid analgesics	1318 (59.1%)
	Non-opioid analgesics	1874 (84.0%)
	Antiepileptics	892 (40.0%)
	Antipsychotics	950 (42.6%)
	Anxiolytics	754 (33.8%)
	Antidepressants	1302 (58.3%)
	Benzodiazepines	1474 (66%)
	Buprenorphine	47 (2.1%)
	Methadone	24 (1.1%)
Consultations and hospitalisations	Hospitalisations in MSO¹ – number (%)	
	0 stay	198 (8.9%)
	1 stay	447 (20.0%)
	2 stays	366 (16.4%)
	3 stays	247 (11.1%)
	4 stays	207 (9.3%)

	5 stays	141 (6.3%)
	6- 10 stays	371 (16.6%)
	11- 15 stays	116 (5.2%)
	16- 20 stays	62 (2.8%)
	20 stays and more	77 (3.5%)
	Medical consultations in hospital and out of hospital	
	Mean (SD)	30.3 (31.8)
	Paramedical consultations out of hospital	
	Mean (SD)	106.4 (211.1)
Imaging and biological investigations	Imaging investigations out of hospital or on an outpatient basis - mean (SD)	
	MRI	0.55 (1.2)
	CT	1.82 (3.4)
	Scintigraphy	0.05 (0.3)
	Ultrasound	2.06 (3.7)
	Total	4.49 (6.7)
	Blood tests out of hospital	
	Mean (SD)	11.2 (18.7)
Medical nomadism	Independent doctors consulted out of hospital	
	Mean (SD)	6.1 (5.8)
	Separate pharmacies that dispensed at least one drug	
	Mean (SD)	4.4 (4.5)
	Separate hospitals visited, with hospitalisation only (MSO, follow-up care and rehabilitation, psychiatry)	
	Mean (SD)	2.9 (5.36)
	French departments visited for hospitalisation - number (%)	
	1 department	1453 (65.1%)
	2 departments	550 (24.6%)
	3 departments	122 (5.5%)
	4 departments	51 (2.3%)
	5 departments and more	56 (2.5%)
	French regions visited for hospitalisation - number (%)	
	1 region	1893 (84.8%)
	2 regions	247 (11.1%)
	3 regions	45 (2.0%)
	4 regions	15 (0.7%)
	5 regions and more	32 (1.4%)

¹ Excluding the stay of the first diagnosis of FDIS and chemotherapy, radiotherapy and dialysis sessions

² Audioprosthesis, childcare assistant, dietician, occupational therapist, nurse, masseur-physiotherapist, optician, speech therapist, orthoptist, osteopath, chiropractor, pedicurist, pedorthist, dental prosthetist, psychomotrician, childcare worker

Table 3. Specialists consulted out of hospital, from one year before to one year after the diagnosis of FDIS – number of subjects who saw at least one specialist in the area (%)

General practice	2182 (97.8%)
Ophthalmology	855 (38.3%)
Anesthesiology	718 (32.2%)
Psychiatry	618 (27.7%)
Cardiology – vascular medicine	589 (26.4%)
Gynaecology - obstetrics	469 (21%)
Neurology	469 (21%)
Dermatology	456 (20.4%)
Internal medicine	452 (20.3%)
Hepato-gastro-enterology	447 (20.0%)
Orthopedic surgery and traumatology	397 (17.8%)
ENT	365 (16.4%)
General surgery	340 (15.2%)
Rheumatology	264 (11.8%)
Pneumology	259 (11.6%)
Endocrinology - diabetology - nutrition	211 (9.5%)
Urology	156 (7.0%)
Physical medicine and rehabilitation	91 (4.1%)
Visceral and digestive surgery	90 (4.0%)
Stomatology	85 (3.8%)
Neurosurgery	82 (3.7%)
Nephrology	61 (2.7%)
Plastic, reconstructive and aesthetic surgery	61 (2.7%)
Maxillofacial surgery	58 (2.6%)
Vascular surgery	46 (2.1%)
Oncology	42 (1.9%)
Hematology	30 (1.3%)
Cardiac and thoracic surgery	21 (0.9%)
Geriatrics	15 (0.7%)
Odontology	13 (0.6%)
Genetics	3 (0.1%)
Allergology	0 (0%)
Infectious and tropical diseases	0 (0%)
Oral surgery	0 (0%)

Table 4. Principal or significant associated diagnoses mentioned in association with FDIS diagnosis (n = 1550) – number¹

F10. Mental and behavioural disorders due to use of alcohol	3
	3

F32. Depressive episode	2
	3
G40. Epilepsy	1
	8
I10. Essential (primary) hypertension	1
	4
Z51. Other medical care	1
	2
E87. Other disorders of fluid, electrolyte and acid-base balance	1
	1
Z09. Follow-up examination after treatment for conditions other than malignant neoplasms	1
	1
F60. Specific personality disorders	1
	0
F41. Other anxiety disorders	1
	0
E11. Non-insulin-dependent diabetes mellitus	9
Z53. Persons encountering health services for specific procedures, not carried out	9
Y90. Evidence of alcohol involvement determined by blood alcohol level	9
D50. Iron deficiency anaemia	9
F17. Mental and behavioural disorders due to use of tobacco	8
Z74. Problems related to care-provider dependency	8
Z92. Personal history of medical treatment	7
R53. Malaise and fatigue	7
R40. Somnolence, stupor and coma	7
E55. Vitamin D deficiency	7
Z71. Persons encountering health services for other counselling and medical advice, not elsewhere classified	7
R52. Pain, not elsewhere classified	6
L98. Other disorders of skin and subcutaneous tissue, not elsewhere classified	6
E66. Obesity	6
F33. Recurrent depressive disorder	6
Z91. Personal history of risk-factors, not elsewhere classified	6
F44. Dissociative [conversion] disorders	6
R45. Symptoms and signs involving emotional state	6
X61. Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	6
M54. Dorsalgia	5
E78. Disorders of lipoprotein metabolism and other lipidaemias	5
E10. Insulin-dependent diabetes mellitus	5

Z60. Problems related to social environment	5
F31. Bipolar affective disorder	5
F29. Unspecified nonorganic psychosis	5
T43. Poisoning by psychotropic drugs, not elsewhere classified	5
J44. Other chronic obstructive pulmonary disease	5
Z75. Problems related to medical facilities and other health care	5
Z50. Care involving use of rehabilitation procedures	5
N18. Chronic renal failure	5

¹ Only diagnoses with at least 5 occurrences are presented

Author Statement

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Declaration of interest

Conflicts of interest: none.