JOURNAL OF MARKET ACCESS & HEALTH POLICY
2019, VOL. 7, 1595953
https://doi.org/10.1080/20016689.2019.1595953

Routledge
Taylor & Francis Group

ARTICLE

Characteristics of doctor-shoppers: a systematic literature review

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ABSTRACT

Objective: Doctor-shopping has significant consequences for patients and payers and can indicate misuse of drugs, polypharmacy, less continuity of care, and increased medical expenses. This study reviewed the literature describing doctor-shoppers in the adult population.

Methods: A systematic literature review was performed in PubMed and supplemented by a Google search of grey literature. Overall, 2885 records were identified; 43 papers served as a source of definition of a doctor-shopper, disease, treatment, patient characteristics, patient special needs, country.

Results: Definitions of doctor-shopping were heterogeneous. Overall, 40% of studies examined the use of opioids, antidepressants, or psychoactive drugs, while the others focused on chronic or frequent diseases. Most studies were conducted in countries with easy access to healthcare resources (USA, France, Taiwan, Hong Kong). The prevalence of doctor-shopping ranged from 0.5% among opioid users in the USA to 25% of patients registered at general practices in Japan. Comorbidities, active substance abuse, greater distance from healthcare facility, younger age, longer disease and poor patient satisfaction increased doctor-shopping.

Conclusions: Knowing the characteristics of doctor-shoppers may help identify such patients and reduce the associated waste of medical resources, but concerns about the misuse of drugs or healthcare resources should not prevent proper disease management.

ARTICLE HISTORY
Received 14 January 2019
Revised 7 March 2019
Accepted 11 March 2019

KEYWORDS
Doctor-shopping; doctor-shopper; drug abuse; drug misuse; healthcare utilization; physician switching; second opinion patients

Introduction

Doctor-shopping involves visiting multiple doctors with the same health problem and is often observed in outpatient clinics. It has significant consequences for patients and payers, because multiple consultations and overlapping prescriptions are associated with drug misuse, polypharmacy, and increased medical expenses. Changing doctors for the same illness episode without a referral and a link to a history of previous treatment reduces healthcare providers' ability to ensure effective and efficient treatment [1–3]. Also, rising expectations of receiving high-quality healthcare have been reported to have an impact on the patient–doctor relationship and to contribute to a switch of doctor [4,5].

On one hand, patients are entitled to seek high-quality healthcare, but on the other hand, excessive searching for a second opinion contributes to increased costs of treatment and reduces continuity of care. There are many reasons why patients engage in doctor-shopping. Reports from the literature highlight the importance of factors affecting accessibility to healthcare facilities, such as location, opening hours, and waiting times [6–8]. Patients visit more doctors when they have a chronic disease or a drug addiction and their health problem remains unresolved despite receiving treatment [9–11]. Among factors that reduce doctor-shopping are a proper diagnosis, high patient satisfaction and a good patient–doctor relationship [12,13].

Extensive studies of doctor-shopping in a broad population of patients have not been published in the literature. There is still an ongoing debate among researchers on definitions used to measure this phenomenon and on how to evaluate its impact on patient well-being and healthcare resource use. We conducted this study in order to improve our knowledge of doctor-shopping and to focus the attention of healthcare providers on its reasons and consequences.

Objective

The aim of this study was to review the literature describing doctor-shoppers in the adult population and to identify factors associated with doctor-shopping behaviour.

Methods

A systematic literature review was performed in PubMed and supplemented by a Google search of

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Table 1. Inclusion and exclusion criteria.

PICO	Inclusion criteria	Exclusion criteria
Population	Adults; patients with any disease in outpatient or inpatient settings.	–
Intervention	Any intervention or diagnostic procedure.	–
Comparator	None required.	–
Outcome	Doctor switch.	–
Study design	Cohort study; RCT; case report; abstract; database analysis.	Review; letter to the editor; editorial; opinion.

Table 2. Electronic search strategy in PubMed.

ID	Search terms	Number of PubMed hits
#1	Doctor shopping[Text Word]	153
#2	Doctor shopper[Text Word]	8
#3	Physician shopping[Text Word]	2
#4	Physician shopper[Text Word]	28
#5	Double doctoring[Text Word]	4
#6	Drug seeking patient[Text Word]	10
#7	(physician) AND switch*	2514
#8	(doctor) AND switch*	1959
#9	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8	2837

grey literature. The search in PubMed was run on the 28 May 2018. No restrictions regarding timeframe and geographical scope were applied. Eligibility criteria were defined according to the PICOS approach and are presented in Table 1. A first reviewer screened records and abstracts as well as selected studies for qualitative analysis and extracted data from selected publications. Doubtful cases were discussed with a second reviewer, and discrepancies were resolved by consensus. The electronic search strategy is presented in Table 2. The following data were extracted: definition of doctor-shopper, disease, treatment, patient characteristics, doctor-shopping rate, special patient needs, and country.

Results

Overall, 2885 records were identified in PubMed and 48 in the grey literature, out of which 43 were included in the qualitative synthesis. A PRISMA flow diagram of study selection is shown in Figure 1.

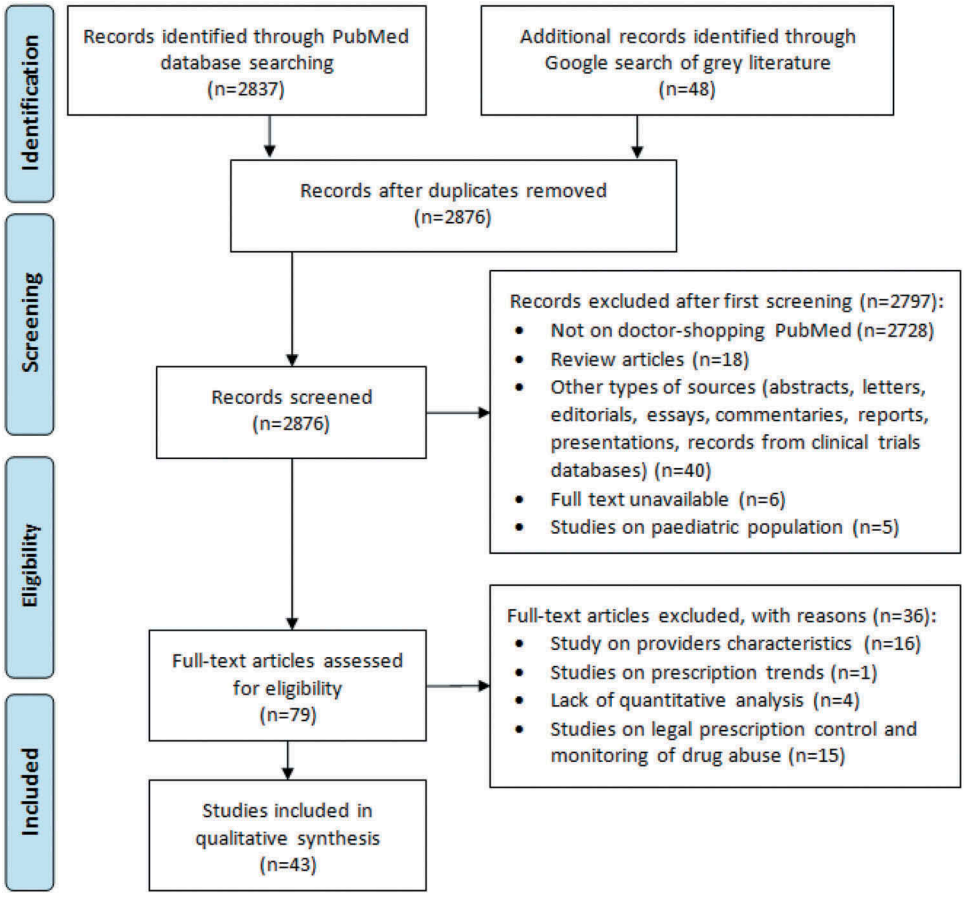

Figure 1. PRISMA flow diagram.

Definition of doctor-shopping

Definitions of doctor-shopping were heterogeneous. The type of the definition depended mostly on the drug and disease studied and the type of source data used in each specific study. The most consistent definitions were used in studies on drug misuse, especially opioids, in which researchers retrospectively evaluated prescriptions using IMS prescription databases or insurance databases. These studies were based on calculations of daily dose that enabled detection of drug overdosing and monitoring the numbers of prescriptions written by different doctors [11,14–19]. Some studies also included information on the number of pharmacies involved [20–25]. Clinical trials and surveys used definitions based on the number of visits during the same illness episode or for the same, often chronic, condition without or within a specified timeframe and without a professional referral. In studies enrolling patients with chronic conditions such as diabetes [7], eye floaters [26], or nephrolithiasis[9], the definition of doctor-shopping specified a higher number of visits, whereas in cases of urgent conditions or infections, definitions specified a timeframe and were, for example, limited to one day [27] or to the same illness episode [6,10,12,28–34]. Studies focusing on the evaluation of doctor-shopping in general medicine or primary doctor facilities had longer timeframes of 1 year [35,36], 2 years [37], or even 3 years [38]. Definitions of doctor-shopping in the studies identified are presented in Table 3.

Geographical scope of studies on doctor shopping

Overall, 17 (39.5%) studies were conducted in the USA, out of which 9 were based solely on retrospective data from large databases [9,11,13,15,19,23–25,36–44]. Another 8 (18.6%) studies were conducted in France [16–18,20–22,30,45], 7 (16.3%) in Taiwan [14,26–28,34,46,47], 5 (11.6%) in Hong Kong [6,8,10,29,33], and 4 (9.3%) in Japan [12,31,32,48]. There was a one study from Australia and one from India [7,35]. The studies were performed in countries where patients can visit medical institutions freely under the national health system and/or have access to all institutions and specialists without a referral. The distribution of countries studied is presented in Figure 2.

Rate of doctor-shopping

Overall, 16 (40%) of studies examined the use of strong, addictive drugs such as opioids, antidepressants, or psychoactive drugs, while the others included patients with chronic (e.g., diabetes, cancer, overactive bladder) or frequent disease (e.g., upper respiratory tract infections). The prevalence of doctor-shopping ranged from 0.5% among opioid users in the USA to 38% of patients registered at general practices in Hong Kong. Examples of rates of doctor-shopping across studies that used different methodologies are shown in Table 4. The rate of doctor-shopping varied considerably depending on the disease, the drug studied, and the type of medical service used. The most reliable precise data were provided for database studies on opioid use. These studies also had the lowest risk bias, because they enabled prescriptions and sales of the drugs prescribed to be tracked in retail prescription databases. Studies including patients registered at outpatient and specialist clinics were mostly based on questionnaires that used different timeframes, small samples, and lacked information about people who refused to participate.

Factors affecting the rate of doctor-shopping

Risk factors for and protective factors against doctor-shopping have been evaluated in multiple studies. Factors associated with doctor-shopping included predominantly the nature of the disease and comorbidities. Both types of doctor-shoppers (opioid users and patients registered at general and primary doctor practices) shared the same risk factors, such as the presence of mental health disorders, alcohol dependence, and a history of alcohol and active substance misuse disorders [9,22,23,30,31,36,40]. Doctor-shoppers were younger and had a lower socioeconomic status than non-doctor-shoppers, particularly among people who misused opioids [9,20,21,23]. Patients with chronic diseases, multiple comorbidities, and persistent symptoms were more likely to visit a larger number of healthcare providers [10,14,37,41,46,47,48]. A good relationship with a doctor and positive experiences were factors that helped to prevent doctor-shopping [33,38]. Individuals who consumed opioids and drugs for the treatment of attention deficit hyperactivity disorder (ADHD) and engaged in doctor-shopping were more likely to pay cash and to travel great distances to doctor facilities or pharmacies [19,24]. Factors contributing to the development of doctor-shopping are summarised in Table 5.

Discussion

This systematic review of the literature showed that doctor-shopping is a common phenomenon. The rate of this phenomenon varies among patient populations with different health problems. For opioids, it can be as low as 0.45% among the broad population that uses opioids, or as high as 24% among patients with a specific reason for opioid use, such as recent surgery

Table 3. Definitions of doctor-shopping.

Reference	Definition	Type of study	Disease/drug
Cepeda 2013 [24]	>1 prescription by ≥2 different prescribers with ≥1 day of overlap and filled at ≥3 pharmacies.	Retail prescription database	Opioids (tapentadol IR, oxycodone
Cepeda 2013 [25]		Retail prescription database	IR)
Cepeda 2015 [23]		Retail prescription database	Opioids
Chenaf 2016 [20,21]		EGB database	ADHD
Delorme 2016 [22]		EGB database	Codeine, tramadol, chronic pain
			Buprenorphine, naloxone, methadone
Lu 2015 [14]	≥2 prescriptions by different doctors within ≥ 1 day overlapping in the duration of therapy.	Insurance database	Insomnia, zolpidem
McDonald 2014 [15]		Retail prescription database	Opioids
Nordmann 2013 [16]		GHI reimbursement database	Opioids
Ponte 2018 [11]		Insurance database	Opioids
Pradel 2010 [17]		Insurance database	Benzodiazepines
Rouby 2012 [18]		Insurance database	Tianeptine
Simeone 2017 [19]		IMS database	Opioids
Martyres 2004 [39]	>1 prescription without specified dose overlap or number of prescribers.	Database study	Heroin-related overdose
Morris 2014 [40]		Prospective study + database study	Narcotics, orthopaedic trauma
Okumura 2016 [48]		Insurance database	Benzodiazepines
Pradel 2004 [45]		Prescription database	Buprenorphine
Agrawal 2016 [7]	Visiting ≥1–5 doctors during the same illness episode.	Questionnaire	Diabetes
Chang 2012 [28]		Insurance database	Colorectal cancer
Feng 2013 [35]		Questionnaire	Overweight
Gudzune 2014 [13]		Internet-based survey	Overweight
Gudzune 2013 [37]		Claims data, health risk assessments	Overweight
Kappa 2016 [9]		Retrospective study, medical records	Nephrolithiasis, opioids
Leug 2006 [29]		Case-control study	General practitioner facility
Leug 2003 [6]		Cross-sectional survey	General practitioner facility
Lin 2015 [46]		Database study	Traditional Chinese medicine users
Lo 1994 [10]		Database study	Government outpatient departments
Norton 2011 [30]		Questionnaire	Primary care facility
Ohira 2012 [12]		Questionnaire	General medicine
Safran 2001 [38]		Observational study, questionnaire	Primary care facility
Sato 1999 [31]			
Sato 1995 [32]		Questionnaire	Primary care facility
Siu 2014 [33]		Questionnaire	Primary care, alternative medicine
Sorbero 2003 [36]		Interview	Overactive bladder
Tseng 2015 [26]		Database study	General medicine
Wang 2010 [34]		Questionnaire	Eye floaters
Yeung 2004 [8]		Cohort database study	Respiratory infection
Wu 2014 [27]		Telephone interview	Specialist outpatient clinics
		Database study	General practitioner facility
Lee 2011 [41]	Visiting healthcare providers with a special aim.	Telephone survey	Demand for advertised drugs
Stogner 2014 [42]		Survey	Drug abuse or resell
Zhang 2017 [43]		Database study	Price-shopping
Worley 2014 [44]	Study focused on experience.	Interview	Drug abuse during pregnancy
Hsieh 2013 [47]	Hospital change	Retrospective longitudinal study	Hepatocellular carcinoma

ADHD, attention deficit hyperactivity disorder; EGB, Echantillon Generaliste des Beneficiaires; GHI, general health insurance; IR, immediate release.

for nephrolithiasis. The highest rates were reported for multiple visits to doctors during the same illness episode and were found to involve as many as 38% of patients registered at outpatient clinics. Multiple factors were identified as potential risk factors for doctor-shopping. The most common were multiple comorbid conditions including mental disorders, unresolved health problems, history of drug and other substance misuse, younger age, and poor socioeconomic status. Factors such as a good patient–doctor relationship and

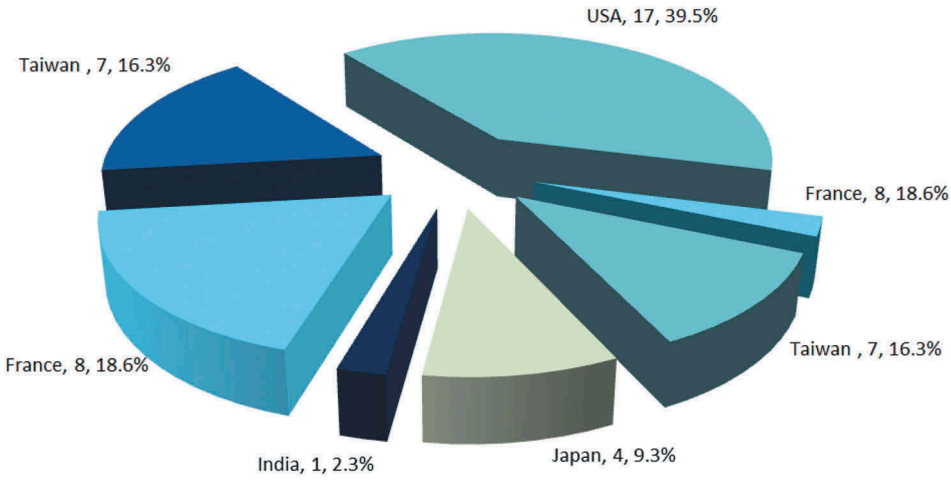

Figure 2. Geographical distribution of the studies analysed.

a positive patient experience may reduce the rate of doctor-shopping.

Doctor-shopping can signal problems of healthcare system and drug overuse resulting in worsening of health condition of doctor-shoppers. A negative impact of polypharmacy on health has been well documented in the literature [49]. Also, changing doctors reduces continuity of care which can translate into worse disease management and increased waiting times as well as increased cost of treatment for both the patients and payers [50]. Another reason for analysing the phenomenon of doctor shopping is drug abuse. According to police and regulatory agency perceptions, about 40% of prescription drug diversions were sourced from doctor-shopping; however, many other mechanisms such as thefts, forgeries, smuggling, insurance frauds, internet purchase, in-transit losses, and physician 'pill-mills' were also identified [51].

The extent and interest in analysis doctor-shopping depend on the healthcare system structure. The country where the study was conducted is an important factor that may influence the rate of doctor-shopping. In some countries, e.g., in Taiwan, patients have access without restrictions to all institutions and specialists [52]. Similarly, in Japan patients can visit medical institutions freely under the national health system [12]. In such cases, the absence of a mandatory attempt to treat the condition by a primary care physician (gate keeper) before a referee to a specialist may increase doctor-shopping behaviour [47]. In France, visiting another general practitioner requires a

Table 4. Rates of doctor-shopping across identified studies.

Disease/drug	Reference/region	Sample size	Rate of doctor-shopping
Stimulants, ADHD	Cepeda 2015 [23] USA	4,402,464	0.45% any type of shopping behaviour 0.05% heavy shopping behaviour
Opioids	Cepeda 2013 [25] USA	10,910,451	0.7% any type of shopping behaviour 0.1% heavy shopping behaviour
Opioids, non-cancer pain	Chenaf 2016 [20] France	1958	4.03% for codeine 0.17% for diuretics 8.45% for buprenorphine maintenance treatment
Opioids	Delorme 2016 [22] France	2043	8.4% for high dosage buprenorphine 0% for methadone 0.2% for diuretics
Opioids, nephrolithiasis	Kappa 2016 [9] USA	200	24% received narcotics from ≥1 provider after surgery
Zolpidem, insomnia	Lu 2015 [14] Taiwan	6947	23.78% for zolpidem
General population	Lee 2011 [41] USA	2998	14% of participants whose doctor refused to prescribe a drug switched doctor
Patients of specialist outpatient clinics	Leung 2003 [6] Hong Kong	6495	26.4% of population requiring specialist care
Government outpatient departments	Lo 1994 [10] Hong Kong	1387	36%-38% during single illness episode
General medicine	Sato 1995 [32] Japan	758	24.4% visited >1 medical facility with the same complaint
Eye floaters	Tseng 2015 [26] Japan	134	35% visited >1 ophthalmologist

Table 5. Factors affecting the rate of doctor-shopping.

Disease/drug	Reference	Risk factors
Opioid users	Cepeda 2015 [23] Delorme 2016 [22]	Presence of mental health disorders; alcohol dependence; low-income status.
Pain	Chenaf 2016 [20]	Presence of mental health disorders; history of opioid and substance misuse disorders; doctor-shoppers were of younger age and lower income status.
Post-surgery due to nephrolithiasis; opioids.	Kappa 2016 [9]	History of mental illness; prior stone procedures; history of preoperative narcotic misuse; younger age; lower income status; less educated.
Orthopaedic trauma	Morris 2014 [40]	History of preoperative narcotic misuse; concomitant alcohol misuse; less educated.
Benzodiazepines	Okumura 2016 [48]	Multiple chronic conditions.
Insomnia	Lu 2015 [14]	Greater number of comorbidities; chronic diseases; younger age; high socioeconomic status.
Hepatocellular carcinoma	Hsieh 2013 [47]	Hepatitis B carriers; recurrence of hepatocellular carcinoma; younger age; female.
Overactive bladder	Siu 2014 [33]	Negative treatment experiences.
Overweight	Gudzune 2013 [37]	Greater number of comorbidities; mental health diagnosis; diabetes mellitus diagnosis.
TCM users	Lin 2015 [46]	Presence of catastrophic illness; history of hospital admission; acupuncture; trauma; dislocation; low income.
Outpatient clinic	Lo 1994 [10]	Presence of chronic or acute conditions; persistent symptoms.
Primary care	Norton 2011 [30]	Presence of psychiatric and mental disorders.
Primary care	Safran 2001 [38]	Poor doctor–patient relationship.
General medicine	Lee 2011 [41]	Presence of cancer and other chronic conditions.
General medicine	Sato 1999 [31]	Duration of illness; presence of psychiatric disorders; perceived poor and deteriorating health condition; less educated.
General medicine	Sorbero 2003 [36]	Multiple comorbid conditions; history of drug/alcohol misuse; younger age; female.

TCM, traditional Chinese medicine users.

small additional payment; however, drugs are prescribed for a shorter period (a maximum of 30 days) compared to other countries [16,18]. In the UK, patients have more difficulties with changing doctors, because many general practitioners do not accept patients from outside their own catchment area. Additionally, it is more difficult to access specialist care in the UK. Unfortunately, no studies from the UK were identified, so an evaluation of the impact of accessibility to healthcare on the rate of doctor-shopping was not possible.

Heterogeneity in the definitions of the doctor-shopping was linked to heterogeneity in the data sources. Studies using prescription databases or insurance claims assessed the number of overlapping prescriptions, whereas studies using surveys as a source of information evaluated the number of visits to doctors. This organisation of research does not give a full picture of the problems associated with doctor-shopping. The analysis of overlapping prescriptions provides information only about the misuse of selected drugs, but leaves problems such as polypharmacy, comorbidities, and effectiveness of treatment of the primary disease undiscussed. Individuals who misuse certain agents from different classes, e.g., opioids, stimulants, and benzodiazepines, might not be identified as doctor-shoppers in these analyses.

The main limitation of surveys is that participants who complete questionnaires may conceal information about addictions, drug misuse or a true reason for a doctor-shopping. The limitation of claims-based study, although giving accurate information, includes possible discrepancies between claims and patient behaviours; claims for prescriptions do not always indicate that the medication was taken as prescribed.

Prescription drug monitoring programmes that aim to reduce drug abuse report that the number of overall drug prescriptions per person is lower when a patient is on a single schedule in comparison to the number of prescriptions filled for individuals prescribed drugs in multiple schedules [53,54]. This finding is intuitive, but highlights the possible risks associated with polypharmacy, which is often rooted in a greater number of comorbidities. The presence of multiple comorbidities, both mental and somatic, was identified as a risk factor for doctor-shopping [9,23,31,36,48].

Little is known on the effective long-term initiatives to reduce doctor-shopping especially in terms of eliminating drug interactions, errors in dosing and polypharmacy. Programs based on the promotion of medication reviews and education of physicians and patients were found to be effective. However, they face problems with the identification of patients at risk for polypharmacy or drug abuse [55]. Computerized physician order entry, clinical decision support, and electronic prescriptions systems showed the ability to diminish medication errors in specific therapeutic areas in monitored patients [56,57]. Introduction of electronic insurance cards with health information and medication history would offer benefits when introduced nationally; however, such solutions require investments in infrastructure [58]. Moreover, Taiwanese experience shows that only 73% of physicians review their prescriptions in response to displayed alerts [59]. The obstacles mentioned above highlight challenges in the development of useful, easy to use and cheap solution for optimising

pharmacological treatment in patients at risk for polypharmacy or drug abuse.

Conclusions

Knowing the characteristics of doctor-shoppers may help identify such patients and reduce the associated waste of medical resources, but concerns about the misuse of drug or healthcare resources should not prevent proper disease management. Further research is needed to cover a wider range of diseases and countries, and to examine the effect of healthcare regulations on doctor-shopping prevalence and costs.

Disclosure statement

No potential conflict of interest was reported by the authors.

Presentations

The abstract and poster of this study were presented at ISPOR Europe 2018, 10–14 November 2018, Barcelona, Spain.

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