

Prevalence and Cause of Self-Medication in Iran: A Systematic Review and Meta-Analysis on Health Center Based Studies

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Abstract

Background: The aim of this study was to systematically review and meta-analysis of the prevalence and causes of self-medication in health center setting of Iran. **Methods:** In this systematic review and Meta-Analysis study, required data were collected by searching the following key words: medication, self-medication, over-the-counter, non-prescription, prevalence, epidemiology, etiology, occurrence, health centre and Iran in PubMed, Scopus, Google Scholar, SID, Magiran, and Iranmedex. To estimate the overall self-medication prevalence, computer software CMA2 was used. In order to report the results, forest plot was employed. **Results:** Out of 2511 articles, 16 articles entered to study. The overall prevalence of self-medication based on the random effect model was estimated to be 41% (95% CI, lowest= 31%, highest=53%). The prevalence of self-medication in pregnant women and the patients in health centers was estimated to be 41%(95% CI, lowest = 32%, highest = 54%)and 46%(95% CI, lowest = 30%, highest = 69%) respectively. The most important cause of self-medication was lack of health insurance. The most common disease for which the patients self-medicated was common cold and the most frequently used group of medicines was sedatives. **Conclusion:** Rising the insurance coverage, giving awareness to the patients and culture-building can be applied to encourage the people for rational use of medicines.

Key words:Self medication, Prevalence, Cause, Health Center, Iran

Introduction

Nowadays, self-medication is a common practice not only in developing countries (Abasaee et al., 2009; Awad, Eltayeb and Capps, 2006; Haider and Thaver, 1995; Bertoldi et al., 2014; Bortolon et al., 2008; Carvalho et al., 2009; Chaves, Lamounier and Cesar, 2009), but also in developed ones (Bosch, Toranzo and Baños, 1990; Carrasco-Garrido et al., 2010; Figueiras, Caamano and Gestal-Otero, 2000; Al-Azzam et al., 2007). It is a behavior in which the individual attempts to solve his/her health problem without professional opinion or help (Klemenc-Ketis, Hladnik and Kersnik, 2010). In the face of global economic downturn in recent years a large number of countries are faced with serious health challenges and the people find it difficult to meet their health needs (Abasiubong et al., 2012). Non-doctor consultation and self-medication are defined as obtaining treatments and drugs without the advice of a physician, either for diagnosis, prescription or surveillance (Adedapo et al., 2011). The irrational and self-driven use of drugs can lead to various side-effects (Selvaraj, Kumar and Ramalingam, 2014) of which the most significances are microbial resistance, non-response to treatment, and toxication. Moreover, self-medication disrupts the drug market, wastes costs and increases per capita drug financing in the society (Asseray et al., 2013; Heller et al., 2012; Aoyama, Koyama and Hibino, 2012).

Based on studies conducted in Iran, the prevalence of self-medication varies from 12% to 90% (Jalilian et al., 2012; Sedighi, Ghaderi-Sohi and Emami, 2006; Shamsi and Bayati, 2010; Tabibi, Farajzadeh and Eizadpanah, 2012; Purreza et al., 2013; Ahadian, 2007). Furthermore, each Iranian uses 339 drugs annually, a figure that exceeds the global standard. Analgesics, eye drops, and antibiotics hold the greatest share in self-medicated drugs (Sedighi, Ghaderi-Sohi and Emami, 2006; Ilhan et al., 2009).

Some of the reasons for growth in self-medication are the urge of self-care, feeling of sympathy toward family members in sickness, high physician fees, lack of health services, insurance problems, poverty, misbeliefs, cultural and socio-economic issues, extensive advertisement of drugs and availability of drugs in the places other than pharmacies (Afolabi et al., 2010; Nguyen and Nguyen, 2013;

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Fruth et al., 2014; Shehnaz et al., 2014; Silva et al., 2013; Sirey et al., 2013).

Taking into account the high prevalence of self-medication in Iran and its adverse effects, health officials and stakeholder organizations need to seriously consider reducing and preventing this phenomenon. To do this, they need accurate and valid information on the prevalence and etiology of self-treatment in the society. Hence, this systematic review and meta-analysis was conducted to provide health system managers, officials, and policy makers with useful and applicable data.

Methods

This systematic review and meta-analysis study was conducted in 2015, using the approach adopted in the book “*A Systematic Review to Support Evidence-Based Medicine* (Khan et al., 2011)”. Moreover, it was performed according to the ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses’ (PRISMA) statement (Liberati et al., 2009; Liberati et al., 2009).

The inclusion criteria for the study were: cross-sectional health center setting studies on the prevalence and causes of self-medication, studies conducted in Iran, articles published in Persian and English in Iran.

Exclusion criteria included: studies conducted in community-based studies, conference presentations, case reports, interventional and qualitative studies.

Required data were collected by searching the following keywords: medication, self-medication, over-the-counter, non-prescription, prevalence, epidemiology, etiology, occurrence and Iran. The following databases were used: Google Scholar, PubMed, Scopus, Magiran, Scientific Information Database (SID) and Iranmedex. Some of the relevant journals and websites were searched manually. The reference lists of the selected articles were also checked. In the final stage of the literature review we searched the gray literature and consulted experts. There was no time limitation for our study search.

In the first phase of the review process, an extraction table was designed that included the following items: first author’s name, year of publication, city, sample and sample size, self-medication prevalence percent (in both males and females), Drug Group, determinant factors, cause of self-medication and type of request for the drug. The validity of the data extraction table was confirmed by experts. A pilot study (with 5 articles) was conducted for further improvement of the extraction table. Two authors (M.M and N.M) who had sufficient experience and knowledge were responsible for independently extracting the data.

In the first phase of article selection, articles with non-relevant titles were excluded. In the second phase, the abstracts and full texts of articles were reviewed to include those articles that matched the inclusion criteria. Reference management (Endnote X5) software was used to organize and assess the titles and abstracts, as well as to identify duplicate studies. Microsoft office Excel 2010 was used to draw graphs.

Two reviewers (M.M and N.M) evaluated the articles on the basis of the ‘Strengthening the Reporting of Observational Studies in Epidemiology’ (STROBE) checklist (Von Elm et al., 2007; Shamsi, Tajik and Mohammadbegee, 2009; Sadeghi-Bazargani, Tabrizi and Azami-Aghdash, 2014) (Appendex1). Cases in which a consensus had not been reached between these two reviewers were referred to a third author (A.A.S).

To estimate the overall self-medication prevalence, computer software CMA 2 (Comprehensive Meta-Analysis) (Englewood, NJ, USA) was used. Forest plot was employed to report the results. In the latter, the size of each square shows the sample size and the lines on each side of the square show the confidence interval. Self-medication prevalence was calculated on the basis of the random effect model, with 95% confidence interval. Funnel plot was applied to evaluate the possibility of publication bias.

Results

In this study, out of 2511 articles, finally 16 articles completely related to the study objects were included (Shamsi and Bayati, 2010; Alavi et al., 2011; Asefzadeh et al., 2002; Asefzadeh, Barkhordari and Moghadam, 2003; Bagheri, Eskandari and Abbaszadeh, 2014; Baghianimoghadam et al., 2013; Ghaneie, Hemmati Maslakpak and Baghi, 2013; Jalilian et al., 2013; Pirzadeh and Sharifirad, 2012; Sahebi et al., 2009; Tajik, Shamsi and Mohammad Beigi, 2008; Ziayee et al., 2008; Farshidi et al., 2013; Sattari et al., 2012; Zargooshi, 2002; Askarian, Danaei and Momeni, 2013) (Fig1).

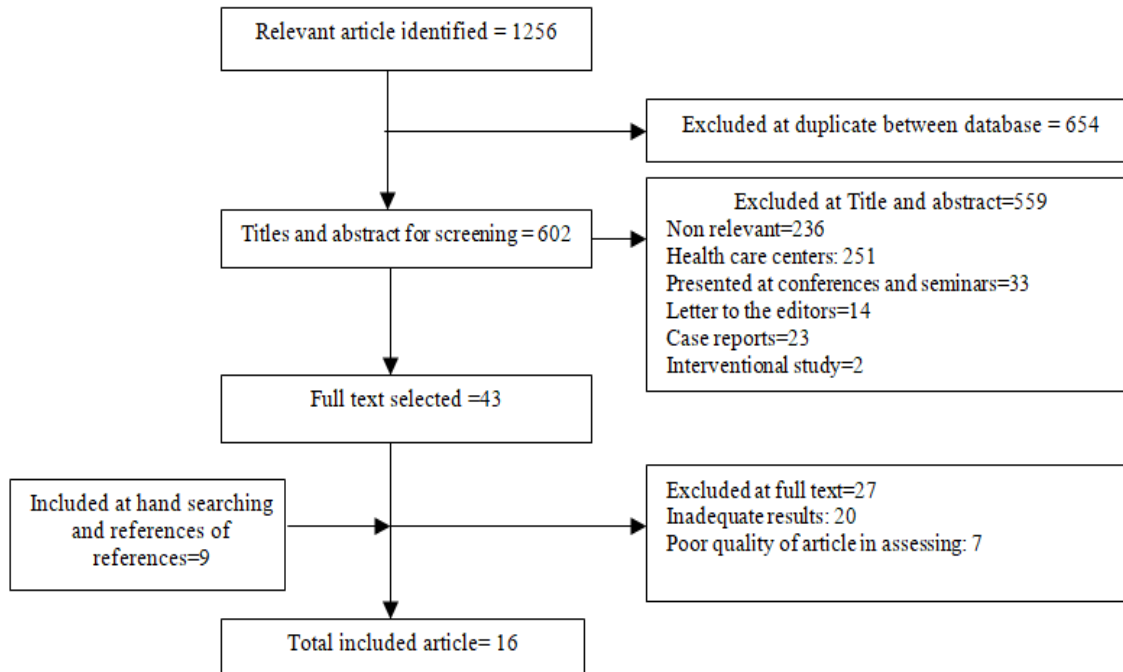


Figure 1- Bibliographical searches and inclusion process

The overall prevalence of self-medication in health center setting of Iran is shown in Fig2

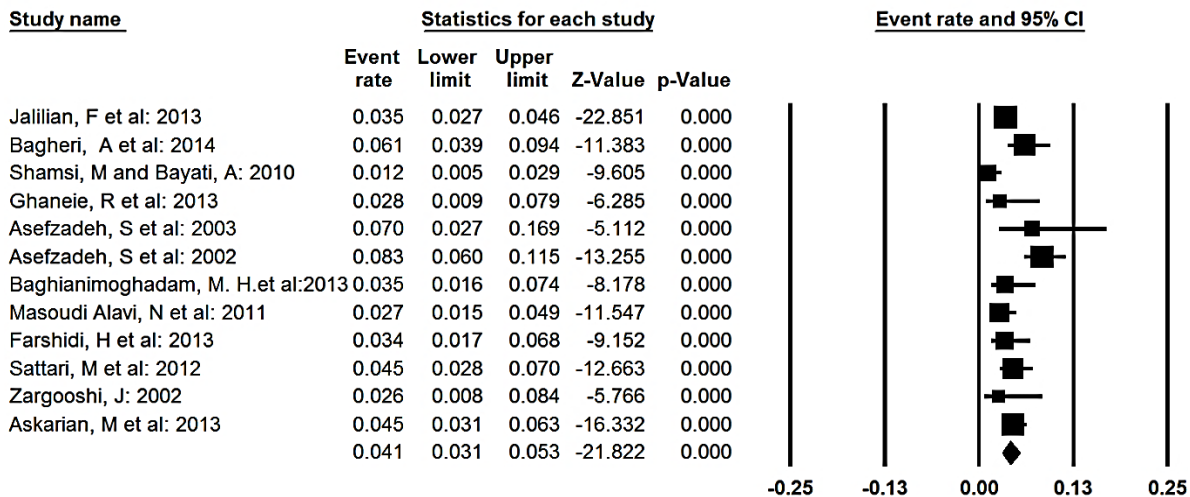


Figure 2- The overall prevalence of self-medication in health center setting of Iran

The overall prevalence of self-medication in health center setting of Iran based on the random effect model was determined to be 41% (95% CI, lowest = 31%, highest = 53%). 95% CI for the prevalence was drawn for each study in the horizontal line format (Q = 32.89df = 11, P < 0.001 I² = 66.5).

The prevalence of self-medication among pregnant women in health center setting of Iran is shown in Fig. 3.

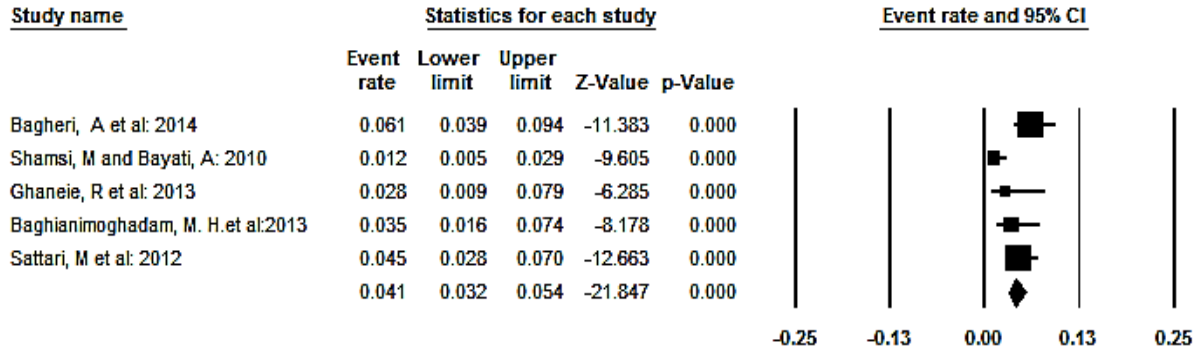


Figure 3-The prevalence of self-medication among pregnant women in community setting of Iran

The prevalence of self-medication among pregnant women in health center setting of Iran based on the random effect model was determined to be 41% (95% CI, lowest = 32%, highest = 54%). 95% CI for the prevalence was drawn for each study in the horizontal line format ($Q = 11.25$ $df = 4$ $P = 0.024$ $I^2 = 64.4$).

The prevalence of self-medication among patients in health center setting of Iran is shown in Fig4.

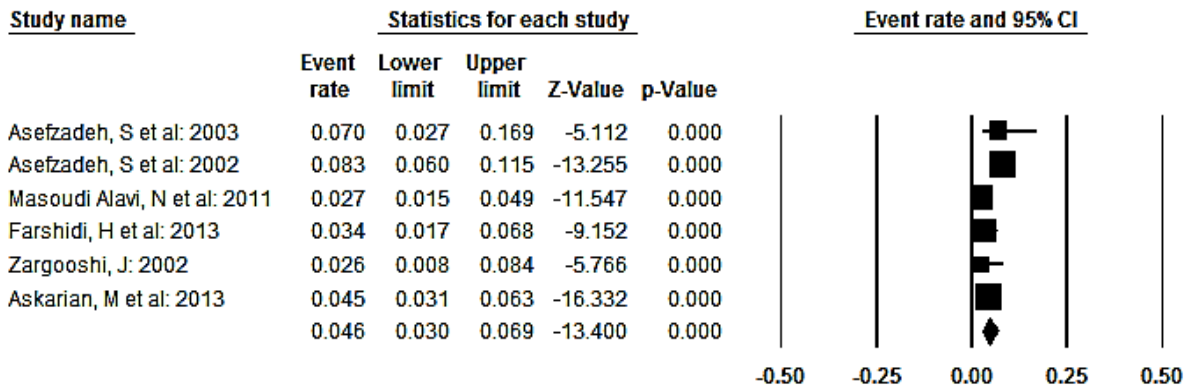


Figure 4-The prevalence of self-medication among patients in community setting of Iran

The prevalence of self-medication among patients in health center setting of Iran based on the random effect model was determined to be 46% (95% CI, lowest = 30%, highest = 69%). 95% CI for the prevalence was drawn for each study in the horizontal line format ($Q = 16.48$ $df = 5$ $P = 0.006$ $I^2 = 69.67$).

To evaluate the publication bias, funnel plot was applied (Fig 4). Result of this funnel plot show there was possibility publication bias among studies.

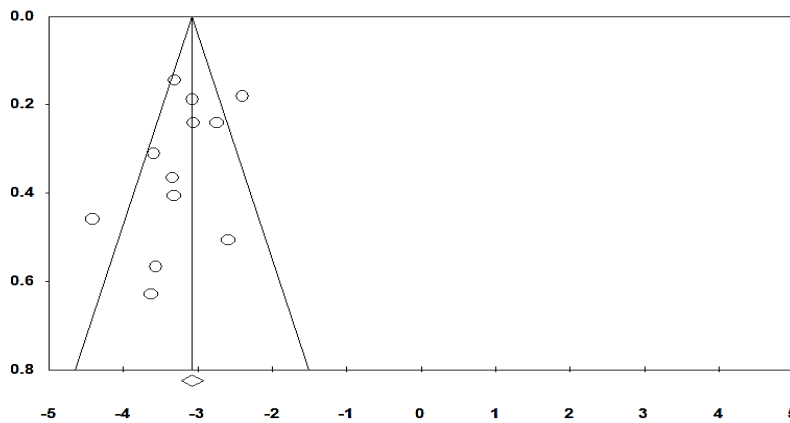


Figure 4- Funnel plot of standard error by event rate

The most common causes of self-medication are shown in Fig5.

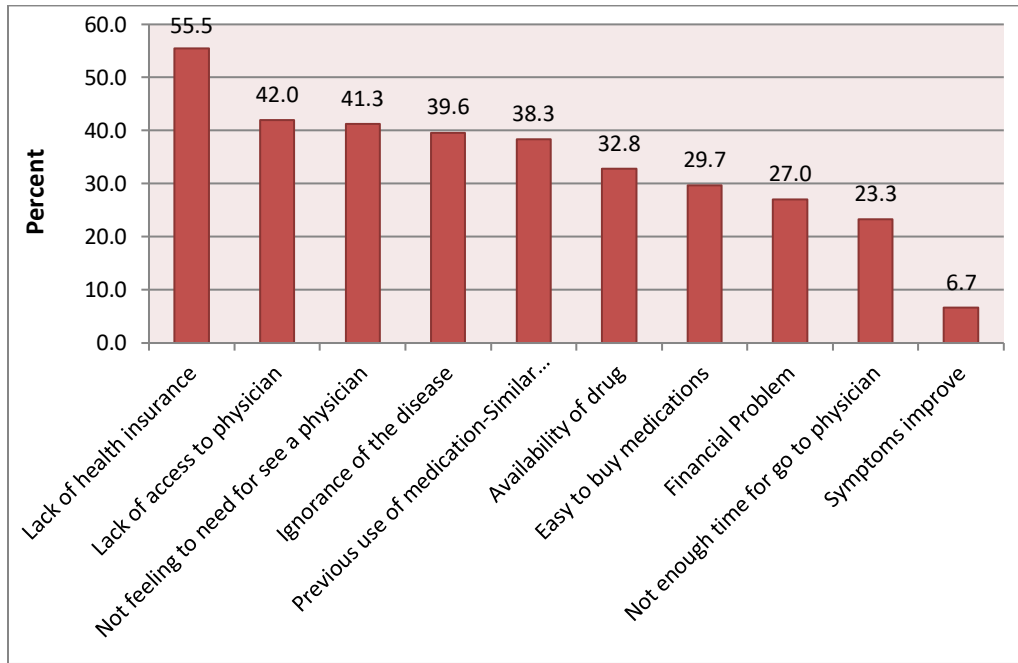


Figure 5. The most common causes of self-medication in health center setting of Iran

As shown in Fig 5, the most important self-medication determinant factors were: Lack of health insurance, Lack of access to physician, Not feeling to need for see a physician, Ignorance of the disease and Previous use of medication-Similar prescribed.

The most common groups of diseases which patients self-medicated are shown in Fig6.

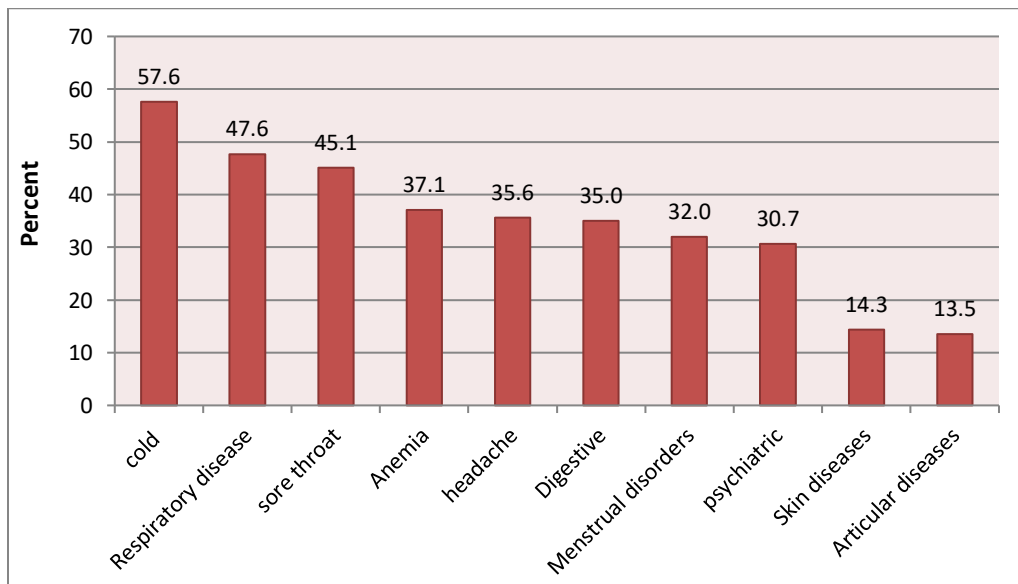


Figure 6. The most common self-medicated groups of diseases in health center setting of Iran

As seen in figure 6, the most important groups of diseases in which patients self-medicated were common cold, respiratory diseases, and sore throat.

The most common drugs or drug groups which patients self-medicated are shown in Fig7.

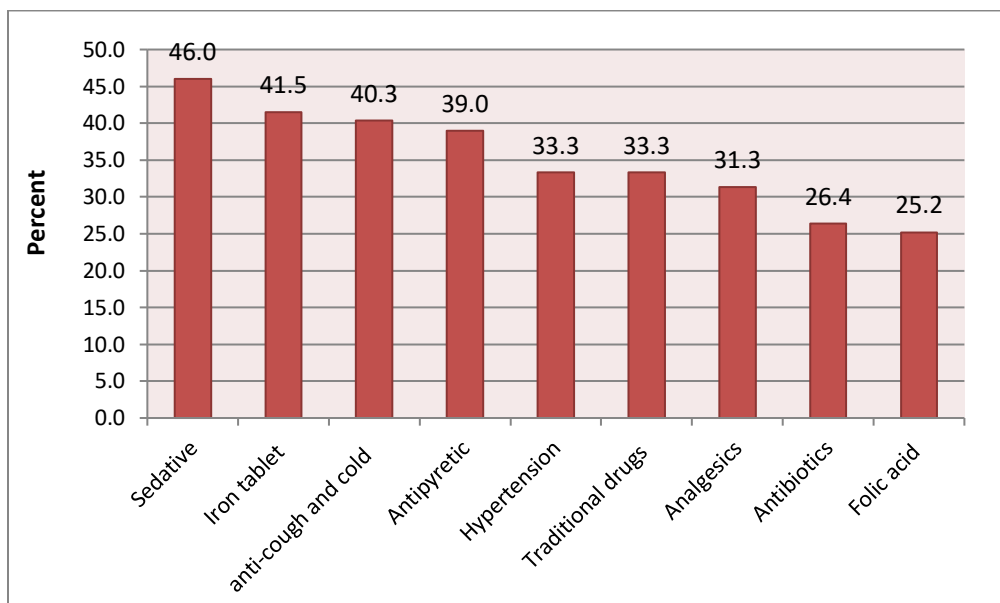


Figure 7. The most common self-medicated groups of medication in health center setting of Iran

According to figure 7, the most important groups of medication that were self-prescribed were sedative, iron tablet, anti-cough and cold, antipyretics.

Discussion

The overall prevalence of self-medication in health centers of Iran was 41%. The most important determinant factors of self-medication were: Lack of health insurance, Lack of access to physician, Not feeling the need to see a physician, Ignorance of the disease, and Previous use of medication-Similar prescribed. The most important groups of diseases in which patients self-medicated were cold, respiratory diseases, Anemia and sore throat. And the most important groups of medication that were self-prescribed were sedative, iron tablet, anti-cough and cold, and the antipyretics.

Based on the results of the study, the overall prevalence of self-medication in health centre setting in Iran was 41%. This percentage is higher than the results of studies in Nigeria (2010) 37.6% (Fakeye, Adisa andOlatunji, 2010) and (2011) 19.2% (Bello et al., 2011), Brazil (2008) 26% (Bortolon et al., 2008), Turkey (2009) 35.2% (Ilhan et al., 2009), Argentina (2012) 33% (Kivelevitch et al., 2012) and less than studies performed in France (2013) 84.4% (Asseray et al., 2013), Brazil (2009) 54.6% (Chaves, Lamounier and Cesar, 2009), India (1987) 64% (Greenhalgh, 1987), Singapore (2009) 58.9% (Kua et al., 2012), Yemen (2010) 60% (Mohanna, 2010), Senegal (2006) 81% (Ndiaye et al., 2006) and Tanzania (2005) 74% (Nsimba andRimoy, 2005). All mentioned studies have been carried out in the health centers and hospitals.

Most other studies too have reported lower prevalence of self-medication than the one in Iran (Figueiras, Caamano andGestal-Otero, 2000;Grigoryan et al., 2008; Grigoryan et al., 2006; Grigoryan et al., 2007; Lal, Goswami andAnand, 2007). The side-effects of drugs are becoming more and more evident and people are getting more used to self-medication as the years pass. Hence, health ministries and stakeholder organizations should try to reduce the rate of self-medication through proper planning and thus, to prevent its harmful outcomes through following measures: encouraging the physicians to use non-medication treatment techniques, moving towards universal health insurance coverage, reduction of medical expenditures, developing mechanisms for easy and inexpensive access to physicians, appropriate communication through mass media, television, radio, news agencies, publications and medical universities, raising public awareness about self-medication, limiting the sales of OTC drugs, supervising pharmacies' performance and other similar measures.

The prevalence of self-medication among pregnant women was equal to the general population (41%). The study of Abasiubong, performed in Nigeria in 2012, showed that the self-medication prevalence among pregnant women is higher than our estimate (72.2%)(Abasiubong et al., 2012).Likewise, Chaves et al. in Brazil 2009, estimated the prevalence of self-medication more than what we estimated for Iran (54.6% compared to 41%)(Chaves, Lamounier and Cesar, 2009). The prevalence of self-medication among pregnant women exceeds from 41% in most other studies, but Gomez et al. in a study conducted in Peru in 2010, calculated the prevalence of self-medication among women as 32.1% (Gomez et al., 2010).

The prevalence of self-medication was higher among patients (46%) than other visitors of the health centers. Ahmad et al. in a study conducted in India, showed high prevalence for self-medication in patients (50%) (Ahmad et al., 2014). Considering that the patients are in emergency situation, we can expect that in these circumstances the decision is more emotional and more likely to be carried out self-medication because of the special status. Sick people usually cannot work and therefore they may lose their steady income. So they might decide to seek less costly treatment to prevent heavy financial burden. MasoudiAlavi in a study in Iran (2011) examined the prevalence of self-medication for diabetic patients and concluded that the prevalence of self-medication in this population is about 50%. The study also showed that the presence of other diseases is associated with increased prevalence of self-medication. Due to the specific circumstances of the disease, the causes and the extent of self-medication, Patients should be a key component of managing patients in a variety of diseases (Alavi et al., 2011).

The prevalence of self-medication among pregnant women was almost equal to the average of population, and there was no significant difference. Perhaps the most important reason can be cited for this critical condition of the mother and the fear of harming the baby is in the form of self-medication. Since the fetus is extremely vulnerable and affected by the mother's behaviors of eating and drug use, it is expected that the mothers be highly cautious and, as far as possible, take the medicines only in coordination with a professional.

In this study, lack of insurance, lack of access to physician, not feeling to need to see a physician, ignorance of the disease, previous use of similar prescribed medicines, availability of medicines and facing with financial problem were the most important determinant factors of self-medication, respectively. These factors have been repeatedly reported in earlier studies (Bortolon et al., 2008; Figueiras, Caamano and Gestal-Otero, 2000; Adedapo et al., 2011; Jalilian et al., 2012; Ilhan et al., 2009; Afolabi et al., 2010; Baghianimoghadam et al., 2013; Fakeye, Adisa and Olatunji, 2010; Kivelevitch et al., 2012; Kua et al., 2012; Afolabi et al., 2011; Bisika et al., 2008; Muras et al., 2013; Al-Ramahi et al., 2013; Jassim, 2010; Omolase et al., 2007; Yousef et al., 2008; Sawalha, 2008; Horton and Stewart, 2012; Sweileh et al., 2011). Moreover, the diseases for which the most self-medication was done, were: cold, respiratory diseases, sore throat, anemia, headache and digestive problems. Many studies confirm these findings (Ilhan et al., 2009; Mohanna, 2010; Ahmad et al., 2014; Hugues et al., 1990; Koley et al., 2013; Dey et al., 2013; Du and Knopf, 2009; Eticha and Mesfin, 2014; Mehuys et al., 2012; Ocan et al., 2014; Scicluna et al., 2009; VacasRodilla et al., 2009; Sarahroodi et al., 2012; Schrand, 2010). Likewise, the most significantly self-medicated drugs in patient attended the health centers in Iran were similar to those self-medicated elsewhere (Bertoldi et al., 2004; Al-Ramahi et al., 2013; Lawan et al., 2013; Morgenstern and Heintze, 2013; Ndol et al., 2013; Pineles and Parente, 2013; Shehnaz et al., 2013; Benotsch et al., 2013; Giese et al., 2013). Sedatives, iron tablet, anti-cough and anti-cold, and antipyretics were the most frequently used drugs. Prioritizing these factors while planning for self-medication reduction can yield greater results.

Limitations: One of the main limitations of this study was the lack of access to certain databases. Furthermore, certain details had not been reported in the published articles, so they could not be extracted. Laying greater focus on complete and detailed reporting in future research can resolve this problem.

Conclusions:

The results of this study showed that the prevalence of self-medication in patients referred to health centers and hospitals in relatively higher than that of the whole world. A greater percentage of the patients involved in this phenomenon. The survey of prevalence of self-medication in different subgroups showed no significant difference between self-medication in pregnant women and the other visitors of the health centers. One of the main factors that led to the self-medication in the studied population was having no health insurance. This factor along with other economic factors as well as the high cost of health care and especially medicines, low financial ability of patients, high tendency of medical personnel to prescribe drugs in Iran, causes Fear of following prescribed treatment and using self-medication as an inexpensive treatment method. Other items that affect the self-medication were the lack of access to doctors in some areas that cause the use of drugs without a prescription and according to previous similar experiences or recommendations of other people, known as the easiest and most accessible way to treat.

Among the diseases for which the participants have self-medicated were cold and respiratory diseases.

The results of this study showed that the prevalence of self-medication in patients referred to health centers and hospitals in Iran are relatively higher than other countries and a greater percentage of the patients involved. In comparison of the prevalence of self-medication in different subgroups, no significant difference was observed between self-medication in pregnant women and the general population. One of the most important factors that cause people to self-medicate is the lack of insurance. This factor, along with other economic factors as well as the high costs of health care, especially medicines, low financial ability of patients and high willingness of some medical staff to prescribe medication in Iranian society, cause the fear of people to follow-up the prescribed drugs and doing self-medication therapy as an inexpensive treatment. Other issues affecting the self-medication is the lack of access to doctors in some areas and cause people the use the drug without prescription and based on past experience and the recommendations of the other, as the most convenient and most accessible way for the treatment. The most frequent diseases that people have resorted to self-medicate as a result

were cold and respiratory diseases. Given the high prevalence of colds and previous experience of relatives and friends in catching the cold, it seems that most people do not consider the cold as a serious condition that requires attention and do not see a doctor for medical treatment. Sedatives were the most frequently used group of drugs that have been used for self-treatment purposes. The results of this study showed that several factors affect the various aspects of self-medication. The heavy costs which self-medication imposes on society require attention to this issue. Policy-makers and health officials should work as much as possible in order to decrease this phenomenon. Activities such as improving infrastructure, increasing the awareness of individuals and communities and more control over doctors and other medical staff can facilitate the reduction of self-treatment and self-medication.

The results of current study show a relatively higher prevalence of self-medication among the Iranian population in community setting as compared to other countries. Moreover, it was relatively high in special groups (students, elderly and households). The most important reason behind self-medication was the appearance of mild symptoms of disease. The most significant group of diseases that were self-medicated was respiratory diseases, and the most important groups of drugs self-medicated were analgesics and antibiotics. The detrimental effects of self-medication from the health, social and economic perspectives warrant the need for appropriate planning and policy-making to reduce it. Raising public awareness, culture-building, control and supervision of physicians' and pharmacies' performance can have beneficial effects in this regard.

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Appendix1:

STROBE Statement-checklist of items that should be included in reports of observational studies

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any pre specified hypotheses
Methods		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding
		(b) Describe any methods used to examine subgroups and interactions
		(c) Explain how missing data were addressed
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy
		(e) Describe any sensitivity analyses
Result		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed
		(b) Give reasons for non-participation at each stage
		(c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders
		(b) Indicate number of participants with missing data for each variable of interest
		(c) <i>Cohort study</i> —Summarize follow-up time (eg, average and total amount)
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time

		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included
		(b) Report category boundaries when continuous variables were categorized
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
Discussion		
Key results	18	Summarize key results with reference to study objectives
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalizability	21	Discuss the generalize ability (external validity) of the study results
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

Author, country, year	city	Sample and sample size	Prevalence SM (%)			Drug Group (%)	Effectuated factors (RR OR Odd)	cause the SM (%)	Type of requests for the drug
			Male	Female	Total				
Jalilian, F et al: 2013	Hamadan	pharmacies visitors-1400			35.4	- Pain medication (10.6) - antibiotics (7.3) - anti-cough and cold medications (4.5)	perceived severity	- Not have self medication (64.6) - Previous experience (11.4) - Similar prescribed (8.9) - Symptoms improve (5.0) - High costs of doctor's visits (3.6)	
Tajik, R et al: 2008	Arak	Women-300		54		- Antibiotics(68) -cold(64) -Iron tablet(57) - Sedatives(54) - Febrifuge(52) - Acetaminophen(47) - Multivitamins(41) - Folic acid(37) -Herbal medicines(32)	Job,Insurance, Educational level	- Ignorance of the disease(69) - High costs of visit (63) - having no health insurance(55) - Previous experience(53) - Lack of access to physician(51) - Not enough time(48) -Previous experievene(41)	- Respiratory (68) - anemia(43) - Digestive disease(41) - Neurological disease(36) - Menstrual disorders(32) - Dermatological disease (34) - Joint disease (14.5%)

Pirzadeh, AandSharifirad, Gh:2012	Isfahan	Women-385		86		-cold(53.7) - Analgesics(47.5) - Iron tablet(27.6) -Herbal medicines(20.2) - Folic acid(17.6)		- Previous experience(36.4) - availability of drug (26.6) - Ignorance of the disease(26.1) -High costs of visit (25.8) - easy Preparation(23.3)	- Common cold (57.6) - headache(53.7) - anemia(13.2)
Bagheri, A et al: 2014	Kashan	Pregnant Women - 303			60.55				
Ziaei, T et al: 2008	Tehran	Pregnant Women-180				-Chemical(2.2) -Herbal(84.2) - Acetaminophen - Amoxicillin - Antihistamines - cold - Fluoxetine - ranitidine			
Shamsi, M and Bayati, A: 2010	Arak	Pregnant Women-400			12	- Antibiotics(48) - cold(43) - Iron tablet(40) - Sedatives(38) - Febrifuge(26) - Acetaminophen(24) - Multivitamins(22) - Folic acid(21)	Age, Job, Educational level	- Ignorance of the disease(58) - having no health insurance(56) - High costs of visit (54) - Previous experience(51) -Lack of access to physician(44) - Not enough time(40) - Previous experience(35)	- anemia (55) - Digestive (46) - Respiratory (34) - Neurological disease(24) - headache(22) - Dermatological (18)
Ghaneie, R et al: 2013	Saghez	Pregnant Women-116			27.6	- Analgesics(15) - Antibiotics(5) - Vitamins(4) -Digestive(3)		-High costs of visit (22.4) -partial problem (47.4) -Fear of becoming aware of a dangerous illness (11.2) -Lack of doctor's trust(5.2) - No time to see the doctor(13.8)	
Asefzadeh, S et al: 2003	Qazvin	patients- 60			70	- Hypo tensive(33.3) - Angina(18.4)		- Previous experience (41.7)	

						- Hyperlipidemia(5) - Traditional drugs(33.3) - Blood Sugar(3.4) - Others(6.6)		- High costs of visit (25) - Ignorance of the disease(15) - Lack of doctor's trust(10) - Temporary disease remission(8.3)	
Asefzadeh, S et al: 2002	Qazvin	Patient- 400	81.5	84.6	83.3	- Analgesics(54.1) - Antibiotics(20.5) - Digestive(9) - Vitamins(6.8) -Psychiatry(4.8)			- Respiratory (40.9) - Neurological disease(32) - Digestive (18) - Joint(6) - Dermatological (1)
Sahebi, L et al: 2009	Tabriz	Pharmacy customers- 300				- Analgesics(21) -Cough and cold(14) - Vitamins(12) -Antibiotics(9.6)	Existence of disease	-Not feeling to need for see a doctor(41.3) - Similar prescription(34) -Cost reduction(26.7) - saving time(13)	
Baghianimoghadam, M. H.et al:2013	Yazd	Pregnant women- 180			35				
MasoudiAlavi, N et al: 2011	Kashan	Patient- 398			27		Female gender, lower education and co-morbid illnesses of hypertension, cardiac disease and hyperlipidemia	- negligence of the disease (30) - inability to afford the visit fees of the physicians (14.7)	
Farshidi, H et al: 2013	Hormozgan	Patients- 227			34.3				
Sattari, M et al: 2012	Tabriz	Pregnant women- 400			44.9	herbal medicine			
Zargooshi, J: 2002	Kermanshah	Patients- 100			26				
Askarian, M et al: 2013	Shiraz	Patients- 667			44.5	Antibiotics	age and gender	-previous experience (74.4) - family members or friends (11.7) - Pharmacies(8) efficacy of treatment	- frequent cause common cold (62.8) - sore throat (45.1) - toothache (22.9) - rhinorrhea (16.5)

								(41) - inability to access the physician (30.9) - inability to pay for the expenses (21.8) - lack of willingness to pay (16)	- urinary tract infection (14.5) - otitis media (7.4) - diarrhea (4.7)
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