

Prevalence and predictors of self-medication practices in the population of Saudi Arabia: systematic review

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ABSTRACT

A review on practices of self-prescription among Saudi Arabian residents with a thorough understanding of the burden, type of medications, and causes for medicating themselves were conducted. A wide range of electronic bibliographic databases such as PubMed, Embase, and ERIC was searched. 15 full-text studies which measured the prevalence of self-medication across different areas of Saudi Arabia from 2005 to 2020 were incorporated in the review.

There was a broad difference in the frequency of self-medication practices with a minimum of 11.4% to a maximum of 93.1%. The highest prevalence of self-medication practices was reported by Alzaharni *et al.*, 2015 and the lowest was reported by Makeen *et al.*, 2019. All of the studies assessed the self-medication practices for antibiotics except few studies that also evaluated analgesics, antipyretics, antihistamines, and herbs. Reasons for self-medication included age, lack of knowledge about adverse effects, advice by a friend, the shortest distance from pharmacies to homes, young age, dissatisfaction with health care system, minor ailments or symptoms, difficulty in obtaining medical help, lack of time, and wrong perception about the efficacy of antibiotics in treating infections. This review demonstrates a greater prevalence of self-medication in Saudi Arabia, which calls for urgent actions by health authorities. The technology could be used to deliver prescriptions from doctors to dispensing chemists centered on which supply would happen to customers. The approach can restrict the salvage of prescription and will assist to save the data, which regulatory authorities of the drug can scrutinize and review.

Keywords: Self-medication practices, Saudi Arabia, Systematic review, Self-prescription

Introduction

Self-medication implies the utilization of medications for diseases on their own rather than consulting clinicians or physicians [1-4]. The World Health Organization (WHO) states, self-medication is the way of medicating oneself to get a cure for some diseases [5]. Across the world, numerous health conditions are treated by people by self-medicating themselves annually [6]. Nevertheless,

there is a variable frequency of self-medication that varies across various countries of the globe varying from 38.5 to 92 percent [4]. In low-middle income countries, around 80% of medicines are procured without being prescribed by the doctor [7]. For instance, around 81.4% of the people have been reported to use medicines on their own without a doctor's consultation during their lives [8]. This habit of self-medication is attributed to the reasons such as restricted access to clinics or hospitals, experience, non-serious disease, emergency, time and money-saving, recommendations by colleagues, and enough knowledge about medicines [9].

There are advantages as well as disadvantages of self-medication for people and communities. Individuals can benefit from self-medication because of convenient, quick, and less expensive medication for self-diagnosed health problems [10]. Conversely, it may be harmful as individuals may incorrectly diagnose their conditions, thereby resulting in the wrong diagnosis and hence

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wrong medications, insufficient dosage, incorrect administration route, inappropriate timing, protracted medication, interaction with other drugs, side effects of a drug, and resistance to the microbiota [7]. Comparably, it may cause wastage of reserves and people can experience ailments due to drugs. It has been found that self-medication is the primary reason for abuse among doctors [9]. Individual studies have been conducted in Saudi Arabia, but the studies are not reviewed and synthesized on trends of self-medication in Saudi Arabia in terms of its rate of usages, causes, a form of self-medication, and related factors. This systematic review offers a synthesis and robust review about practices of self-medication among the people of Saudi Arabia with a thorough understanding of the burden, type of medications, and reasons for self-medication.

Materials and Methods

A review systematically conducted to evaluate, synthesize, and combine the existing evidence on self-medication practices among people of Saudi Arabia. The PRISMA guidelines were used to carry out this systematic review [11].

Inclusion and exclusion criteria

The eligibility of a study was contingent for inclusion if a research study was focused on studying the self-medication practices among people of Saudi Arabia among all age groups, cross-sectional study type, published in English from 2005 to 2020 across different regions of Saudi Arabia. Studies that focused on interventions or qualitative studies were excluded. Furthermore, studies without full texts were also excluded. All those studies that consisted of opinions, criticisms of older research studies, and editorials were not included rather studies that referred to self-medication practices were incorporated.

Information sources and search strategy

The systematic search of published articles started and completed in 2021. A wide range of electronic bibliographic databases such

as PubMed, Embase, and ERIC was searched. A combination of Medical Subject Heading (MeSH) keywords and text words were identified. The search terms comprised of “self-medications” “medications without prescriptions”, “practices of self-medication and Saudi Arabia”, “self-prescription AND Saudi Arabia”.

This was followed by combining these major concepts using combinations (AND, OR) relevant to the research question. Moreover, to detect more research articles, we also used truncation (*) with the same root word.

Data abstraction

All appropriate research studies were imported into the reference manager software (Endnote™) file, where each study was reviewed and screened titles for duplicates in this software.

Results and Discussion

Findings of the search strategy

The initial search identified 2956 citations in different databases. However, 1225 articles were duplicates that were removed. 15-articles were retrieved with full texts were incorporated in the review. The details of the search strategy were shown in **Figure 1**.

Characteristics of the eligible studies

Concerning the setting, of these 15 studies, 4 were undertaken in Riyadh City, one was undertaken each in Al-Khoobar area, Jeddah, AlWazarat Health center, Alsha Eastern Province, Abha city, Majmahh city, Najran, King Khalid University, Rural Jazan, King Faisal University Eastern province of Saudi Arabia. The sample size of all included research studies varied between 150 to 1330 with an average sample size of 684 study participants of all age groups. All the studies had both males and females included with a minimum age of 1 year to a maximum of 65 years (**Table 1**).

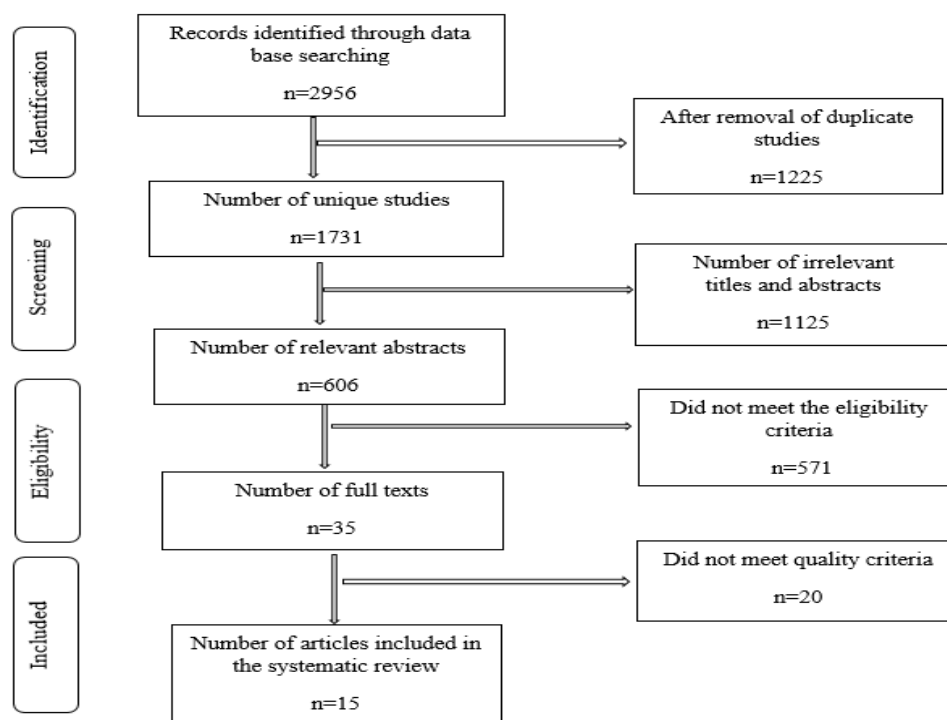


Figure 1. Chart summarizing the screening, identification, and inclusion of studies for systematic review

Concerning the designs of the study, as expected all study designs were cross-sectional studies ranging from hospital-based cross-sectional to community-based cross-sectional studies. One study was performed each in 2007, 2011, 2013, 2016, three studies

were conducted in 2014 and 2015, two studies were conducted in 2018, and three were conducted in 2019 as illustrated in **Table 1.**

Table 1. Characteristics of the eligible studies included in the systematic review (n=15)

Study	Study year	Study area	Study design	Sample Size (n)	Age of study participants (Years)
Eldalo <i>et al.</i> [12]	2014	Taif, KSA.	cross-sectional study	1,022	15-20
Abahussain <i>et al.</i> [13]	2007	Al-Khobar area, KSA	cross-sectional study	1,330	16.1 ± 1.7
Al Rasheed <i>et al.</i> [14]	2016	Al Wazarat Health Center, Riyadh, KSA	hospital-based cross-sectional study	681	> 18 years
Ibrahim NK <i>et al.</i> [15]	2015	King Abdulaziz University, Jeddah, KSA	cross-sectional study	504	22.9 ± 1.2 years
Alghanim [16]	2011	Riyadh, KSA	cross-sectional study	500	18 to 65
Emeka <i>et al.</i> [17]	2014	Al Ahsa Eastern Province, KSA	cross-sectional study	377	> 18 years
Alshahrani <i>et al.</i> [18]	2019	Abha, KSA	cross-sectional study	1022	15–20
Aljadhey <i>et al.</i> [19]	2015	Riyadh, KSA	prospective cross-sectional survey	538	More than 12
Abobotain <i>et al.</i> [20]	2013	Riyadh, KSA	cross-sectional study	610	Parents of 1 and 12 years old children
Alzahrani [21]	2015	Majmaah, KSA	cross-sectional study	390	29.90 ± 11.56
Belkina [22]	2014	Najran, KSA	cross-sectional study	400	More than 18 years
Al-Qahtani <i>et al.</i> [23]	2018	King Khalid University Hospital	cross-sectional study	519	More than 18 years
Makeen <i>et al.</i> [24]	2019	Primary health-care centers in rural Jazan, KSA	cross-sectional study	500	≤ 25 to ≥ 36
Aldeeri <i>et al.</i> [25]	2018	Riyadh, KSA	observational cross-sectional	400	18–25
Benameur <i>et al.</i> [26]	2019	King Faisal University in the Eastern province of KSA	survey-based cross-sectional study	150	20.96 ± 0.148

Findings regarding self-medication practices and their reasons

There was a varied variation regarding the prevalence of self-prescription practices with a minimum of 11.4% to a maximum

of 93.1%. The highest frequency of self-prescription practices was reported in one study conducted by Alzaharni *et al.* [27], and the lowest was reported by Makeen *et al.* in 2019. The prevalence of self-medication practices was studied among all age groups and in one study parents of children ranging from 1 to 12

years were included to evaluate the prevalence of self-medication done by parents to treat different ailments of kids by parents in their homes. The authors found prevalence as of 11.6% among children. Concerning the main study therapy area, almost all of the studies assessed the self-medication practices for antibiotics.

However, few studies also evaluated other types of medications such as analgesics, antipyretics, antihistamines, and herbs as shown in **Table 2**. Likewise, concerning the reasons or predictors of self-medication practices, all studies explored the reasons or determinants of self-medication except three studies.

Table 2. Main findings of the review with the prevalence of self-medication practices and its correlates among the population of Saudi Arabia (n=15)

Study	Prevalence of self-medication (%)	Significant correlates or reasons for self-medication	Study therapy area
Eldalo <i>et al.</i> [12]	20.4	—	Not specified
Abahussain <i>et al.</i> [13]	37.7	Age and awareness of drug's side effects	Analgesics, Antibiotics, and Over the counter drugs
Al Rasheed <i>et al.</i> [14]	78.7	Friend recommendation and pharmacy closer to the home	Antibiotics
Ibrahim NK <i>et al.</i> [15]	55.4 to 75.2	living with family, age >21 years, and non-professional jobs of fathers.	Analgesics, Antipyretics, Anti-histaminic, Antibiotics, Anti-inflammatory, and Antacids
Alghanim [16]	35.4	youngsters, men, having weak health status, dissatisfaction with the health care system	Over the counter drugs
Emeka <i>et al.</i> [17]	13.0 to 72.8	-----	Antibiotics
Alshahrani <i>et al.</i> [18]	10.9	-----	All types
Aljadhay <i>et al.</i> [19]	19 to 51	Minor symptoms, to save time, and minor ailments	antibiotics and analgesics or antipyretics
Abobotain <i>et al.</i> [20]	11.6	income, number of children, type of infection treated in the previous year, being unsure, antibiotics used by someone else in the family, and unsure for such use	Antibiotics
Alzahrani [21]	93.1	Gender and use of non-prescribed medication	antibiotics and analgesics or antipyretics
Belkina [22]	48	Lack of knowledge about the risks of antibiotic use	Antibiotics
Al-Qahtani <i>et al.</i> [23]	40.8	difficulty in obtaining medical help, the last experience with a similar illness	Antibiotics
Makeen <i>et al.</i> [24]	11.4 to 38.3	Accessibility of drugs in pharmacies or online stores, and recurrence of symptoms	antibiotics and analgesics or antipyretics
Aldeeri <i>et al.</i> [25]	63.25	Lack of time	Analgesics, antibiotics and herbs
Benameur <i>et al.</i> [26]	58.4	Wrong perception about the effectiveness of antibiotics in treating bacterial infections	Antibiotics

A wide variation in the burden of self-medication practices across various regions of Saudi Arabia was found. It could be due to several reasons such as the operational definition of self-medication, which was not consistent across different research studies. Some of the studies used the themes such as the use of medication without consultation of physicians or clinicians, use of medicines without prescription and, using medicines by taking initiative on one's responsibility. Further, diverse groups of study participants, wide-ranging sample size and categories of age, differences in data collection techniques, variation in the response rates in different studies might have resulted in a wide gamut of prevalence across different regions. However, even with all these possible explanations of variable prevalence, the higher prevalence of self-medication practices is not unique to Saudi Arabi but our findings are rather consistent with other reviews conducted by different authors in different countries.

The studies that were reviewed and evaluated, demonstrated that the most commonly used self-prescribed medications were antibiotics and the majority of the studies were undertaken to find self-medication practices for antibiotics. Although this is an encouraging indication or a direction by scholars to handle the danger of resistance to antibiotics, simultaneously it is not a good

sign because almost none of the studies emphasized awareness regarding the resistance of antibiotics among study participants. Contrasting the majority of the other medications that only disturb specific patients if consumed improperly for self-medication, antibiotics increase a universal risk of heightened spread resistance to bacteria [28]. According to the report by WHO, serious, global danger to public health, obviously reveals severe risk is no longer a projection for the future, it is occurring at the moment in each territory of the world and can influence anybody, of every age group, in any nation [29]. Though this is accurate in several instances, accountable self-medication is to be urged and can cause optimistic consequences as informed recently by the World Health Organization. In low middle countries law requires the presentation of a doctor's prescription to buy the antibiotics, individuals can even obtain antibiotics on their own with no prescription [30]. This might be due to a lack of awareness about the resistance to antibiotics and other side effects caused by different medications [31]. Pertain to the predictors of self-medication practices among people of Saudi Arabia, we found that lack of awareness is one of the reasons, which is consistent with the lack of awareness about antibiotic resistance [32]. This problem of lack of awareness might not be

limited to Saudi Arabia but also prevalent in countries such as Uganda, Sri Lanka, Pakistan, Ghana, antibiotic, India, China, Bangladesh, and Nigeria.

Another studied reason highlighted by studies was dissatisfaction with the existing health care systems and easy access to pharmacies or medicine stores. These findings might be explained by the fact that either fee charged by physicians in countries such as Saudi Arabia might be higher, and people are always reluctant to pay excessive out-of-pocket expenses [33]. This in turn might push individuals to buy medicines on their own without consulting the physicians, which might create a vicious circle of poor health and poverty for the individuals in the longer run. This also explains time restriction and expense, as some of the common causes for self-medication in the included studies. Therefore, when drugs are effortlessly available in drugstores, self-medication appears a fast and less costly procedure for individuals self-managing their health without even thinking of the long-term consequences.

Strengths and limitations

The review has unique strengths. First, included a wide range of studies that were not only focused on the research regarding an important area in health care, which has not been studied before by synthesizing the findings by reviewing individual studies. Second, included studies from most of the areas in Saudi Arabia to have a good representation of studies from the entire country. However, it seems that most of the studies regarding self-medication practices are carried out in Riyadh, thereby making a recommendation to understand the same practices across the country. However, study results need to be interpreted considering few limitations. First, limited studies were available in the English dialect, and studies published in the non-English language might have different findings than noticed, thereby introducing publication bias. Second, only one study being carried out on children and therefore could not understand the reasons for self-medication by parents, which could be a potential area of research interest in the future.

Conclusion

The findings of the study reveal a higher prevalence of self-medication in Saudi Arabia, which calls for urgent actions by health authorities. There is a need for current programs to gather information on medication utilization and self-medication by clients. Such programs can be assimilated into national surveys being planned in Saudi Arabia. At a pharmacy or drug store, checking prescriptions must become a regular component of scrutiny and inspection by medication regulatory authorities. As several patients obtain medication information from prior prescriptions, doctors must restrict unwarranted prescriptions of medications mainly antibiotics, and execute great ordering practices. By employing the existing technological resources that are user-friendly. More specifically, mobile phones and relevant applications, applications could be devised to deliver medicines from doctors to dispensing chemists centered on

which supply would occur to customers. This approach would restrict the salvage of prescription and also will assist to collect and store the data, which could be scrutinized and reviewed by relevant higher authorities that regulate the drugs.

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Conflict of interest: None

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