

Frequency of use of non-prescribed medication among population sample from Al Madina City and its impact on quality of care in Saudi Arabia

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ABSTRACT

Objective: Self-medication can be defined as the practice of using drugs that have not been prescribed, recommended, or controlled by a certified health-care professional. This term can be used when discussing patients who use non-prescription medications to treat self-diagnosed disorders or symptoms, without consulting a medical practitioner and without any medical supervision. The objectives of this study are to identify patterns of self-medication in Saudi Arabia, to measure the association between gender and the use of non-prescribed medication, and to identify the type of medications involved, the dosages used, and patient's sources of knowledge regarding the types, and doses of medications.

Method: Cross-section analytical observational study, conducted in Al Medina city, Saudi Arabia, over 6 months using a pretested self-administered questionnaire using a convenience sampling technique.

Results: With a response rate of 68.8%, it was found that 72.5% reported the use of non-prescribed medication and 24.3% reported a history of experiencing side effects from using non-prescribed medication with no significant difference between male and female. 81% were keen to read the medication instruction with higher response among females. Analgesics were the most common type of medication used with an 86.5% agreement with no statistical significant differences between male and females.

Conclusion: The study found heavy use of non-prescribed medication among the Al Medina residents sampled. This suggests a need for specialist training programs that could be directed at pharmacists, to help them disseminate information on the safe use of OTC or non-prescribed medications.

Keywords: Community pharmacies, drug utilization, over-the-counter drugs, quality of care, Saudi Arabia, self-care, self-medication

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Introduction

Self-medication can be defined as the practice of using drugs that have not been prescribed, recommended, or controlled by a certified health-care professional.^[1] This term can be used when discussing patients who use non-prescription medications to treat self-diagnosed disorders or symptoms, without consulting a medical practitioner and without any medical supervision.^[2,3] In fact, the use of such medication can be considered to be a measure of low quality of care or high levels of dissatisfaction with the services provided.

The United States Food, Drugs, and Cosmetics Act defines a non-prescription drug as a drug for which directions for safe use by the public can be provided. This does not necessarily mean that it is safe for patients to use these drugs without

consulting a medical practitioner.^[4] For many reasons, people worldwide take responsibility for their own health and well-being daily practising self-care. This includes self-medicating, which is increasingly being recognized as a constituent of self-care.^[5,6] It is beneficial to consider why people resort to self-care, and to investigate the tendency to self-medicate, as a measure of the quality of the care systems implemented worldwide.

Increasingly, governments are encouraging people to treat minor illnesses themselves; this includes self-medication.^[7] In the UK, government policy encourages self-care of minor, self-limiting illnesses.^[8,9] This policy is supported by the continued reclassification of many drugs, which were previously restricted to prescription-only use, allowing them to be purchased over-the-counter (OTC).^[8,9] In fact, this policy

would not have succeeded in the UK without the support of general practitioners and other health professionals, who were encouraged to recommend OTC cough medicines as a first-line treatment for acute coughs. Today, the health-care system supports the provision of quality care and considers the use of OTC medications to be a part of quality care.^[10]

At present, the process of self-medication is becoming more complex, giving the impression that quality in care could be a factor causing this complexity. The reuse of a previous prescription, the use of drugs purchased directly at a pharmacy, or the use of drugs from family first-aid kits are all sources of self-medication. Self-medication and the use of drugs that have not been prescribed by a doctor are both common in developing countries.^[11,12] There are many factors that support the trend toward self-medication for minor medical disorders. These include a reduction in health-care costs, the desire to reduce the proportion of care that is of unsatisfactory quality, the reduction in the number of visits to physicians for unimportant conditions, the decreased use of folk remedies, and patient convenience.^[4] Economic, political, and cultural factors have led to continual growth in self-medication worldwide, turning this practice into a major public health problem.^[2] The fact that a huge number of medicines are currently available on the market does not necessarily equate with an improvement in the quality of health care.^[2,13]

Nonetheless, the consumption of medication is multifactorial,^[14] and to date, a few studies have investigated the prevalence of medicine use, the extent of self-medication, and the risk factors associated with such behavior among the Saudi population.^[2,4] These studies have observed that the use of non-prescribed medication is high among the Saudi population; this could be due to the non-enforcement of regulations and policies on the prescription and dispensing of drugs.^[2] Since drugs can easily be obtained without a medical prescription or an evidence-based indication,^[15] the use of non-prescribed medication is still a cause of concern.^[2,4,15]

However, self-medication is not risk-free. OTC drugs can cause serious adverse effects, leading to allergic reactions and interactions with other drugs. They may also produce physical and psychological dependence and have the potential to mask serious medical disorders that might require immediate attention.^[4] This, in fact, reinforces the need to strengthen the role of the pharmacist, as well as to improve accessibility to health-care institutions as one of the dimensions of health-care quality.

The aims of this study are to identify patterns of self-medication in Saudi Arabia, to measure the association between gender and the use of non-prescribed medication, and to identify the type of medications involved, the dosages used, and patient's sources of knowledge regarding the types and doses of medications. The subsequent discussion will examine the underlying reasons for any patterns, and the affect self-medication has on the overall quality in care. It will discuss the need to enforce dispensing regulations, the need to reassess the list of OTC medications, and the need to

suggest the importance of providing proper training programs for community pharmacists.

Methods

This paper describes a cross-sectional analytical observational study, conducted in the city of Al Medina, in Saudi Arabia, over 6 months. The study took place between September 2016 and the end of February 2017. The participants included adult male and female residents of Al Medina. This study was revised and approved by the Taibah University College of Dentistry Research Ethics Committee (TUCD-REC). All information was kept strictly confidential.

The data for this study were collected using the direct investigation method. Convenience sampling was used to collect data from attendees of local festivals that took place in Al Medina during that period.

A self-administered questionnaire was developed by the investigator. The questionnaire was drafted in Arabic and was tested before being used for data collection. Pilot testing was conducted to check the validity and reliability of the questionnaire. Face validity was ensured by checking whether the instrument appeared to be a good measure of the concept needing to be measured; this can also be considered as a subcategory of content validity. Content validity was assessed by reviewing the literature.^[16,17] Criterion validity was set by the researcher to answer the three study questions. The reliability of the questionnaire was calculated using the test-retest method, and no statistical differences were found.

The questionnaire consisted of an introduction section, in which the aims of the study were described and information on voluntary participation, was provided. The introduction also included information on confidentiality, and waiver of documentation of informed consent had been obtained from the TUCD-REC with the approval number (TUCDREC-20161024). The first section asked for information about the sociodemographic characteristics of the participants, and this was followed by questions about their patterns of the use of non-prescribed medication.

The data were analyzed using SPSS version 23. The mean and standard deviation values for age were calculated, whereas frequency and percentages were calculated for qualitative variables. Inferential statistics were then applied; the Chi-square test and Fishers' exact test were used to compare the results for males and females in the study sample. $P < 0.05$ was considered to be statistically significant.

Results

Over 6 months, data were collected at local festivals that took place in Al Medina City. Of the 500 questionnaires that were distributed, 344 were returned, giving a response rate

of 68.8%. Of the returned questionnaires, 38 were excluded from the study because information was missing. A total of 306 questionnaires were included in the study.

Table 1 shows that males comprised 58.8% and females 41.2%, of the participants. The mean age of the study participants was 33.98 \pm 6.5; the youngest participant was 19 years old, and the oldest was

Table 1: Sociodemographic characteristics

Variable	n=306 (%)		
Gender			
Male	180 (58.8)		
Female	126 (41.2)		
Marital status			
Married	222 (72.5)		
Single	48 (15.7)		
Widowed/divorced	36 (11.8)		
Employment State			
Working	276 (90.2)		
Not working	30 (9.8)		
Education			
School/technical	60 (19.6)		
University or above	246 (80.4)		
Age	Mean\pmSD	Minimum	Maximum
	33.98 \pm 6.586	19	53

SD: Standard deviation

53. The majority of the study participants were married (72.5%), working (90.2%), and had a high level of education (80.4%).

As can be seen in Table 2, only 222 (72.5%) participants reported that they used non-prescribed medication. Among those, 54/222 (24.3%) reported that they had a history of experiencing side effects from the use of non-prescribed medication, with no significant difference between the male and female participants observed.

The majority of our study participants were careful to read the instructions provided in the leaflet accompanying their medication before administration (81%). However, a statistically significant difference between males and females was noted. All females reported reading the inserted leaflet, but only 65% of males did ($P < 0.001$).

There was no statistically significant difference between males and females regarding the presence of chronic diseases, and a total of 78/222 participants (35.1%) reported that they suffered from chronic diseases.

Diabetes, followed by hypertension, was the most common chronic diseases reported by our study sample (24.3% and 18.9%, respectively). High cholesterol was more prevalent in males ($P = 0.001$), and endocrine disorders were more common in females ($P = 0.022$).

Table 2: Parameters related to non-prescribed medications

Parameter	Male	Female	Total	P
	n=180 (%)	n=126 (%)	n=306 (%)	
Have you ever used a non-prescribed medication?				
Yes	120 (66.7)	102 (81)	222 (72.5)	
No	60 (33.3)	24 (19)	84 (84)	0.004
	n=120 (%)	n=102 (%)	n=222 (%)	P
History of side effect with non-prescribed medication				
Yes	30 (25)	24 (23.5)	54 (24.3)	
No	90 (75)	78 (76)	168 (75.7)	0.799
Reading insert leaflet				
Yes	78 (65)	102 (100)	180 (81.1)	
No	42 (35)	0 (0.0)	42 (18.9)	<0.001
Having chronic disease				
Yes	42 (35)	36 (35.3)	78 (35.1)	
No	78 (65)	66 (64.7)	144 (64.9)	0.964
Chronic diseases				
Hypertension	24 (20)	18 (17.6)	42 (18.9)	0.656
Heart diseases	6 (5)	0 (0.0)	6 (2.7)	0.022
High cholesterol	12 (10)	0 (0.0)	12 (5.4)	0.001
Diabetes	30 (25)	24 (23.5)	54 (24.3)	0.799
Endocrine disorders	0 (0.0)	12 (11.8)	12 (5.4)	<0.001
Nervous system disorders	6 (5)	0 (0.0)	6 (2.7)	0.022
Skeletal/rheumatic disorders	12 (10)	6 (5.9)	18 (8.1)	0.263

Table 3 and Figure 1 show that 86.5% of respondents had used non-prescribed medication fewer than 5 times during the previous 6 months, with a higher percentage of females than males belonging to this category (94.1% and 80%, respectively, $P < 0.001$).

Participants mostly tended to obtain their medication from a private pharmacy (94.6%, $P = 0.002$), rather than a hospital pharmacy [Figure 2].

With regard to the duration of use of non-prescribed medication, 81% of respondents said that they use them for 1–3 days, 16.2% use them for 3–6 days, and only 2.7% use them for 6–9 days.

As shown in Table 3, pharmacist played a major role in helping the study participants to determine the correct dose of the

medication (91.9%). Table 3 shows that females, in particular, depend on the pharmacist to do so (100% of females, compared to 85% of males, $P < 0.001$) Family and friends, followed by previous prescriptions, and the severity of symptoms, came after the role of the pharmacist in determining the dose of the medication [Figure 3].

Pharmacists play the most important role in supplying information related to OTC medication (81.1%), followed by family and friends (40.5%), and previous and personal experience (18.9% each). However, 10.8% of participants named the mass media as a source of information regarding non-prescribed medication [Figure 3].

Analgesics were used by 86.5% of the participants, with no statistically significant differences between males and

Table 3: Frequency and pattern of use of non-prescribed medications

Parameter	Male	Female	Total	P
	n = 120 (%)	n = 102 (%)	n = 222 (%)	
Frequency of use on non-prescribed medication over the past 6 months				
<5 times	96 (80)	96 (94.1)	192 (86.5)	<0.001
5–10 times	24 (20)	0 (0.0)	24 (10.8)	
More than 10 times	0 (0.0)	6 (5.9)	6 (22.7)	
From where you usually have the medication				
Private pharmacy	114 (95)	96 (94.1)	210 (94.6)	0.002
Governmental hospital pharmacy	0 (0.0)	6 (5.9)	6 (2.7)	
Private hospital pharmacy	6 (5)	0 (0.0)	6 (2.7)	
Duration of taking a non-prescribed medication				
1–3 days	102 (85)	78 (76.5)	180 (81.1)	0.02
3–6 days	18 (15)	18 (17.6)	36 (16.2)	
6–9 days	0 (0.0)	6 (5.9)	6 (2.7)	
How can you define the dose of the medication?				
Pharmacist	102 (85)	102 (100)	204 (91.9)	<0.001
Previous prescription	30 (25)	12 (11.8)	42 (18.9)	0.012
According to severity of symptoms	30 (25)	0 (0.0)	30 (13.5)	<0.001
Family and friends	18 (15)	30 (29.4)	48 (21.6)	0.009
Source of information when deciding to take a non-prescribed medication				
Pharmacist	96 (80)	84 (82.4)	180 (81.1)	0.656
Previous prescription	36 (30)	6 (5.9)	42 (18.9)	<0.001
Family and Friends	48 (40)	42 (41.2)	90 (40.5)	0.859
Personal experience	30 (25)	12 (11.8)	42 (18.9)	0.12
Mass media	18 (15)	6 (5.9)	24 (10.8)	0.029
Type of medication commonly used				
Analgesics	102 (85)	90 (88)	192 (86.5)	0.482
Antacids, antispasmodics, digestives	60 (50)	60 (58)	120 (54.1)	0.189
Vitamins and food supplements	84 (70)	48 (47.1)	132 (59.5)	0.001
Antitussive/anti-histaminic	54 (45)	54 (52.9)	108 (48.6)	0.238
Creams and topical agents	60 (50)	78 (76.5)	138 (62.2)	<0.001
Chronic disease medications	6 (5)	6 (5.9)	12 (5.4)	0.772
Antibiotics	78 (65)	66 (64.7)	144 (64.9)	0.964

females. However, creams and topical agents, which were used by 62.2% of participants, were more frequently used by females (76.5%) than males (50%) ($P \leq 0.001$). Vitamins and food supplements were used by 59.5% of our study sample, with a higher percentage of usage among males (70%) when compared to females (59.5%) ($P = 0.001$) [Figure 4].

Discussion

This study aims to determine the patterns in the use of non-prescribed medication in Al Medina city, to identify the relationship between the use of non-prescribed medication and gender, to identify the most commonly used non-prescribed medications, to identify the sources of information about non-prescribed medications used by participants, to find the sources from which the studied population obtained this type of medication, and to discuss the reasons behind this trend and its impact on the quality in care. In addition, the study will mention the need to enforce dispensing regulations, the need to reassess the list of medications that can be sold OTC, and the need to suggest the importance of proper training programs for community pharmacists.

Self-medication is very common, and there are a number of reasons why people may choose to self-medicate.^[18] Urge of self-care, feelings of sympathy toward family members in

times of sickness, a lack of time, a lack of health-care services of a satisfactory quality, financial constraints, ignorance, misconceptions, the extensive advertisement of OTC medications, and the availability of drugs without prescription are all responsible for the growing trend of self-medication.^[18]

As can be seen in Table 2, the dosage of medication was mainly determined by a pharmacist. Of the participants in the sample, 91.9% said that they asked a pharmacist to calculate the dose; however, 100% of females, compared with only 85% of males, reported that they mainly asked the pharmacist to calculate the dose of their medications.

However, a higher percentage of males than females relied on the use of previous prescriptions or the severity of symptoms to determine the dose of medication. This study also identified the pharmacist as the primary source of information used when deciding to take a non-prescribed medication. Female participants were more likely to report that the pharmacist was their main source of information than males (82.4%), whereas males were more likely to obtain information from other sources, such as previous prescriptions (30%) and personal

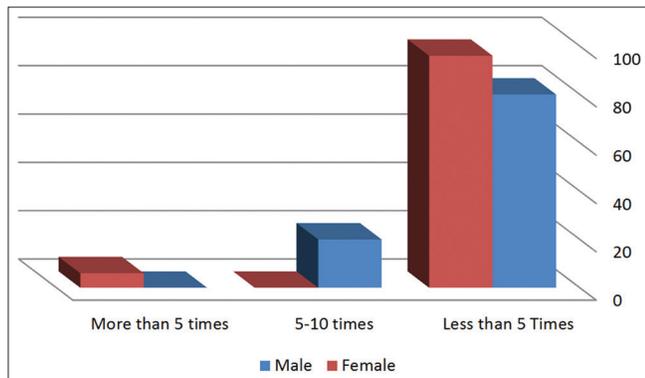


Figure 1: Frequency of use of non-prescribed medication over the past 6 months

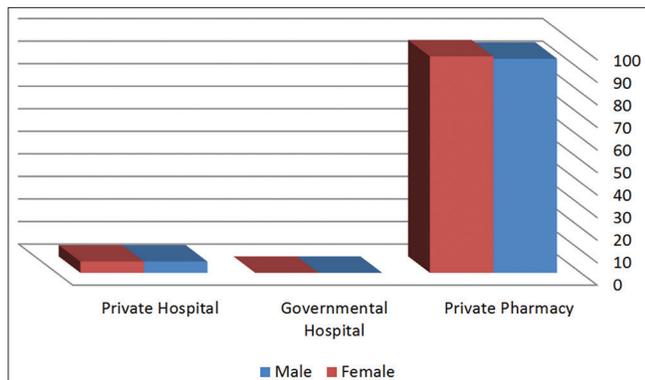


Figure 2: Source of non-prescribed medication

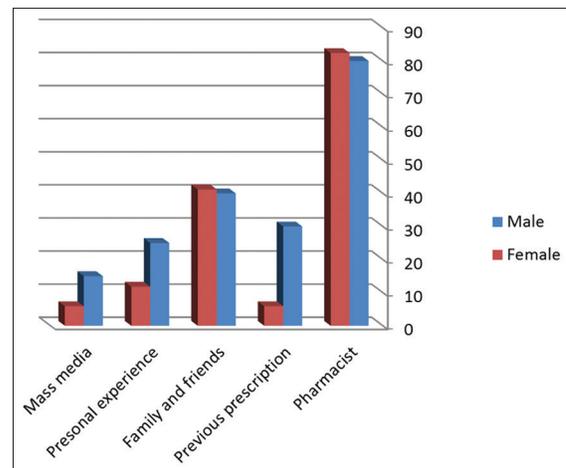


Figure 3: Source of information

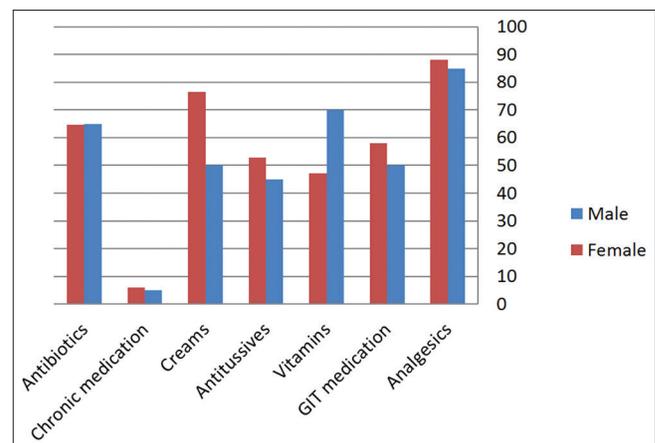


Figure 4: Commonly used medications

experience (25%). This result could explain why pharmacists were nominated as a source of information when deciding to take medication without a prescription and for determining the correct dose of that medication. The argument here is that there is a need to check for population satisfaction regarding the quality of health-care services provided by hospitals and health centres, to minimize the frequency of using of medication that has not been recommended by a doctor. Quality assurance measures and patient safety standards should play a major role in enforcing drug dispensing policy and reviewing the list of OTC medications, and continuous training programs should be offered to pharmacists. A study conducted in Saudi Arabia exploring the role of pharmacists in dispensing non-prescribed medication^[15] showed that antibiotics were dispensed without medical prescription from 244 (77.6%) of 327 pharmacists, with different levels of demand. Over the past two decades, the duties of pharmacists have changed, as the incidence of self-medication has increased worldwide.^[19] Pharmacists can play a key role in giving advice to consumers on the proper and safe use of medicinal products intended for self-medication. It is important, therefore, to take this role into account when considering both the training and the practices of pharmacists.

In other words, pharmacists play a valuable role in identifying, solving, and preventing drug-related problems for the purpose of achieving optimal patient outcomes and quality of life.

It was observed that 72.5% of the participants who agreed to participate in this study had used non-prescribed medication during the previous 6 months. This percentage is considered to be high but is still lower than that found by Al-Zahrani *et al.* in their 2015 study (93.1%).^[2] Females showed a statistically significant higher rate of using non-prescribed medication when compared to males.

Among those who depended on self-medication, only 24.3% had experienced side effects from the drugs that they had taken, and no differences were observed between males and females. This is similar to the findings of Al Zahrani *et al.*^[2] However, when the results relating to reading the instructions were compared, the participants in our study were more likely to read the instructions (81.1%) than those in the study conducted by Al Zahrany *et al.* (50%).

This difference may be attributed to the higher socioeconomic level of our study sample, as 90% of our participants were working, and 80% were educated to university level or above.^[2]

It was also noticed that females were more likely to read the instructions than males. This statistically significant difference may be attributed to the fact that females tend to be more careful and pay more attention to factors relating to their health.

Although the incidence of chronic disease was not high among our study participants and could not be considered to be a drive for using non-prescribed medication, diabetes and

hypertension were, nevertheless, the most two common illness reported by our study participants. Diabetes represented a prevalence of 24.3%, and hypertension was reported by 18.9% of participants; this is in accordance with the findings of Al Nozha *et al.*^[20]

The findings show that non-prescribed medications are most commonly obtained from private pharmacies. Analgesics, followed by antibiotics, were the most commonly used types of non-prescribed medication, with no statistical difference between males and females. This also could support the argument regarding the factors behind the increasing trend for obtaining non-prescribed medications. It was observed that males used vitamins and food supplements more than females, and the reverse was noticed regarding the use of topical agents and creams. This may be attributed to the fact that males in Saudi Arabia work in a wide range of jobs, from office jobs to manual labor, whereas the jobs commonly performed by females tend to make females more likely to use topical agents and creams as secretary work, teaching, fashion designing, and makeup salon.

Conclusion

The study found heavy use of non-prescribed medication among the Al Medina residents sampled. In addition, private pharmacies are heavily implicated in the use of non-prescribed medication. This suggests a need for specialist training programs that could be directed at pharmacists, to help them disseminate information on the safe use of OTC or non-prescribed medications. There is also a need to check satisfaction among the population regarding the quality of health-care services provided by the different health-care institutions available, to reduce the incidence of medication being taken without being recommended by a doctor. In addition, quality assurance measures and patient safety standards could in the future play a major role in enforcing drug dispensing policy and in reviewing the list of OTC medications while providing ongoing professional training for pharmacists.

References

1. Fuentes Albarrán K, Villa Zapata L. Analysis and quantification of self-medication patterns of customers in community pharmacies in southern Chile. *Pharm World Sci* 2008;30:863-8.
2. Alzahrani M, Alhindi T, Almutairi A, Aldajani M, Sami W. Frequency of using non-prescribed medication in Majmaah city, Saudi Arabia-A cross sectional study. *J Pak Med Assoc* 2015; 65(8):825-8.
3. Bi P, Tong S, Parton KA. Family self-medication and antibiotics abuse for children and juveniles in a Chinese city. *Soc Sci Med* 2000;50:1445-50.
4. Bawazir S. Prescribing pattern at community pharmacies in Saudi Arabia. *Int Pharm J* 1992;6:222-4.
5. Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self medication. *Drug Saf* 2001;24:1027-37.
6. Abdulkarem AR, Mustafa H. Use of over-the-counter medication

- among pregnant women in sharjah, united arab emirates. *J Pregnancy* 2017;2017:4503793.
7. Porteous T, Bond C, Hannaford P, Sinclair H. How and why are non-prescription analgesics used in scotland? *Fam Pract* 2005;22:78-85.
 8. Executive S. *Our National Health: A Plan for Action, a Plan for Change*. Edinburgh: Scottish Executive; 2000.
 9. Noyce PR. Providing patient care through community pharmacies in the UK: Policy, practice, and research. *Ann Pharmacother* 2007;41:861-8.
 10. Schroeder K, Fahey T. Systematic review of randomised controlled trials of over the counter cough medicines for acute cough in adults. *BMJ* 2002;324:329-31.
 11. Shankar PR, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in pokhara valley, western nepal: A questionnaire-based study. *BMC Fam Pract* 2002;3:17.
 12. Haseeb A, Bilal M. Prevalence of using non prescribed medications in economically deprived rural population of pakistan. *Arch Public Health* 2016;74:1.
 13. Acevedo DV, Alfaro Valle A, Martínez Toledo JL. Characteristics of drug acquisition in Morelia (Michoacán), Mexico. *Pan American Journal of Public Health* 1995;119:236-42.
 14. Moraes AC, Delaporte TR, Molena-Fernandes CA, Falcão MC. Factors associated with medicine use and self medication are different in adolescents. *Clinics (Sao Paulo)* 2011;66:1149-55.
 15. Bin Abdulhak AA, Altannir MA, Almansor MA, Almohaya MS, Onazi AS, Marei MA, *et al*. Non prescribed sale of antibiotics in riyyadh, Saudi Arabia: A cross sectional study. *BMC Public Health* 2011;11:538.
 16. Al-Assaf A, Assaf RR. *Managed Care Quality: A Practical Guide*. Boca Raton: CRC Press; 1997.
 17. Wallin L. *Knowledge Utilisation in Swedish Neonatal Nursing: Studies on Guideline Implementation, Change Processes and Contextual Factors*. Uppsala: Acta Universitatis Upsaliensis; 2003.
 18. Bennadi D. Self-medication: A current challenge. *J Basic Clin Pharm* 2014;5:19-23.
 19. Jain S. Concept of self medication: A review. *Int J Pharm Biol Arch* 2011;2:831-6.
 20. Al-Nozha MM, Al-Maatouq MA, Al-Mazrou YY, Al-Harhi SS, Arafah MR, Khalil MZ, *et al*. Diabetes mellitus in saudi arabia. *Saudi Med J* 2004;25:1603-10.