

Drug Prescription Practice and Behavior: A Narrative Review with Special Emphasis on Prescribing Patterns in Libya

Nouran Gzllal, Malak Gharibe, Ahmed Atia¹

Department of Pharmaceutical Sciences, The University of Tripoli Alahlia, Janzur, ¹Department of Anesthesia and Intensive Care, Faculty of Medical Technology, The University of Tripoli, Tripoli, Libya

Abstract

Counseling has evolved into an essential component of community pharmacy practice. Patient counseling and addressing drug-related problems are the pharmacist's key activities to ensure the safe and effective use of medicines. There are currently no solid theoretical foundations for research on physician prescribing choices. In fact, doctors' drug prescriptions are a complex phenomenon that are influenced by a number of factors. The majority of current studies in the field of drug prescription use an exploratory approach rather than a theoretical one to describe how doctors make decisions. In Libya, a prescription of medications can easily be obtained from community pharmacies without prescription, resulting in potential drug misuse and health hazard. It was stated previously that there was overprescribing of certain categories of drugs written by Libyan physicians which necessitating further improvement. This review aimed to describe the dispensing practice of prescribed medicines in daily community pharmacy practice in Libya, focusing on counseling, and rational prescription based on the World Health Organization prescribing indicators.

Keywords: Counseling, drug, Libya, prescription

INTRODUCTION

Medicines are an essential component of health care, and modern health care would be impossible without the availability of essential medicines. They not only save lives and promote health, but they also help to prevent epidemics and diseases. Every person has the fundamental right to have access to medicines.^[1] However, in order to provide the greatest benefit, they must be safe, effective, cost-effective, and rational.

Irrational drug prescribing is a major public health issue that health-care systems around the world are dealing with.^[2] It is defined by the World Health Organization (WHO) as "prescribing that does not adhere to good treatment standards."^[3] It has a negative impact on drug therapy outcomes, increases the occurrence of adverse drug reactions (ADRs), raises the risk of drug–drug interactions, raises the demands on drug monitoring, and incurs unnecessary costs.^[4] Furthermore, it may increase the frequency of the emergency department visits, the length of hospital stay, and medication-related mortality.^[4] According to the WHO, more than half of all medicines in the world are inappropriately prescribed in developing countries, where drug monitoring and evaluation are in their infancy.^[5]

Furthermore, nearly one-third of the world's population lacks access to life-saving medicines.^[6]

It is necessary to examine drug use patterns to change prescribing patterns accordingly.^[7] Several well-known survey approaches have been developed for this purpose, one of which is an assessment based on the WHO drug use indicators. These indicators including prescribing indicators, patient care indicators, and health-care facility-specific indicators. The use of these indicators is thought to monitor medication prescribing patterns and enhance good behavior among prescribers.^[8]

Several studies have been conducted to determine the prescribing patterns of Libyan public health facilities. However, no comprehensive review of these studies has been

Address for correspondence: Dr. Ahmed Atia,
Department of Anesthesia and Intensive Care, Faculty of Medical
Technology, The University of Tripoli, Tripoli, Libya.
E-mail: ah.atia@uot.edu.ly

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Gzllal N, Gharibe M, Atia A. Drug prescription practice and behavior: A narrative review with special emphasis on prescribing patterns in Libya. Libyan J Med Sci 2022;6:35-9.

Submission Date: 03-11-2022, **Revision Date:** 29-11-2022,
Acceptance Date: 30-11-2022, **Publication Date:** 02-01-2023

Access this article online

Quick Response Code:



Website:
www.ljmsonline.com

DOI:
10.4103/ljms.ljms_42_22

conducted to provide an overall picture of the country's drug use pattern. As a result, the purpose of this review was to determine the drug prescription pattern in Libyan public health facilities using WHO prescribing indicators.

WHAT IS A PRESCRIPTION

The word prescription originates from the words "pre" - (before) and "script" (writing). Prescription order is written for diagnosis, prevention, or treatment of a specific patient disease.

The medicines along with their appropriate amounts were mentioned by physicians on prescription, with instruction to pharmacist for dispensing the medicines in appropriate doses and amounts as well as duration.^[1] It consists of the prescriber's details, the patient's details (name, age, gender, and address), the superscription, the inscription, the subscription, and the sign.^[1] The first part is prescriber's details, consist of prescriber name, address, registration number of prescriber, and contact number of treating doctor for connection in case of emergency or ADR. It also has a superscription that is represented by symbol Rx, which always written at the beginning of prescription. In addition to that, there is inscription "is the main body of prescription" it contains the names and quantities of prescribed medicines (generic name, dose, frequency, and duration of therapy).

The physician knowledge about the medicines and his/her competence is reflected by what and how he writes. Moreover, there is a subscription that contains the prescriber's directions to the pharmacist regarding the dosage form, number of doses to be dispensed, and refills or change of brands under this section. Furthermore, signature/sign is one of the parts of prescription which consist of directions to be given to the patient regarding the administration of drug. Further, the prescription has date, which is important for the patient, physician and pharmacist to helps ascertain the course of therapy, the timing of follow-up required, It indicates the compliance to treatment, and helps in determining the validity of the prescription and in avoiding unnecessary re-dispensing of the medication described in the prescription.

Errors in prescription writing

A systematic and meticulous approach should be followed while writing a prescription. A prescription can be illegible, incomplete, and irrational. Illegible or unreadable drugs are the biggest challenges as they lead to a large number of prescription errors.^[2] The national patient safety agency revealed that medication errors in all care settings in the United Kingdom occurred in each stage of the medication treatment process, with 16% of errors occurring in the prescribing, 18% in the dispensing, and 50% in the administration of drugs.^[3] Incomplete prescriptions are prescription orders with missing or inappropriate information, i.e., the dosage form, the route of administration, the dosing schedule, and the duration of therapy. Prescriptions without signature of the prescriber, a review advice, instructions to patients, and refill instructions are also considered to be incomplete. This can lead to more of

guess work on the part of both the pharmacist and the patient, which may lead to a fatal outcome.^[9-15]

Irrational drug use index by World Health Organization

Irrational drug use remains a serious and widespread public health problem in developing countries due to a shortage of trained personnel, knowledge gaps, and economic constraints.^[16,17] Resistance to antibiotics, inappropriate prescribing, inappropriate dispensing, and inappropriate use of drugs by patients in the diagnosis, prevention, and treatment of diseases are the leading public health challenges globally.^[18,19] According to the WHO, "irrational use of medicines implies that patients get medications inappropriate to their clinical conditions, doses not that meet their requirements for the desired period.^[20] Worldwide, over half of all medicines are prescribed, dispensed, or sold inappropriately and only half of all patients take their medicine correctly. Irrational use occurs when WHO drug use indicators are not met.^[21,22] The use of wrong or unnecessary drug seriously affects public health worldwide. This leads to decreased treatment outcomes, drug resistance, increased treatment costs, and death.^[23,24] Irrational drug use is a global problem, includes prescribing using brand names, polypharmacy, over-prescription of antibiotics, and overuse of injections among other practices.^[25] Polypharmacy is associated with an increased risk of drug-drug interactions which may lead to ADRs, decreased adherence of patients due to pill burden, and unnecessary high drug costs. Over-prescription of antibiotics increases the risk of drug resistance and drug costs, while overuse of injections increases the risk of tissue injury and transmission of blood-borne diseases, such as HIV/AIDS and hepatitis B and C. Moreover, injections are relatively more expensive than oral medications.^[21-25] The analysis of prescriptions and drug utilization studies can identify the problems and provide feedback to prescribers to curb the problem.^[25,26] Irrational prescribing of drugs leads to misuse, overdose, underdoes, toxicity, ADR, cost, and shortage of drugs at health facilities.^[27,28]

Essential drug list and the national essential drug list

More than 110 countries worldwide have developed essential medicine lists to fit their country's specific needs and context.^[29] The WHO has created a model list of essential medicines, i.e., updated every 2 years based on efficacy, safety, and tolerability. The WHO has stated that "each country has the direct responsibility of evaluating and adopting a list of essential drugs, according to its own policy in the field of health."^[30]

The first WHO essential list was published in 1977, although the children essential list was lately published in 2007.^[30] By the turn of the century, over 150 countries had a national list of essential medicines, and over 100 countries had a national medicines policy. Although initially aimed at developing countries, the concept of essential medicines is increasingly seen as relevant for middle- and high-income countries as well.^[31] The list helps establish which medication is more useful for the public than others, since than the list increase in size

year after year and the intention was shifted from an experience to an evidence-based process. The literature supports that the concept of essential medicines has evolved and broadened in scope, making it difficult to select and assess the appropriate use of essential medicines.^[31]

Within a country, the selection of essential medicines is a two-step process. Regulatory approval is usually based on a review of efficacy, safety, and quality without comparison with other medicines. From these registered products, essential medicines within a therapeutic class are then selected based on comparative efficacy, safety, and cost. National lists of essential medicines are used to guide the procurement and supply of medicines in the public sector, reimbursement schemes, medicine donations, and local production of medicine; they also help define the training of health workers. In short, lists of essential medicines provide the scientific and public health basis for focus and expenditure in the pharmaceutical sector.^[32]

WHO created the Model List of Essential Medicines (WHO-EML) to establish international pharmaceutical standards and guidelines to improve access to medicines. The WHO defined essential medicines as "those that satisfy the priority health-care needs of the population." They are selected with due regard to disease prevalence, evidence on efficacy and safety, and comparative cost-effectiveness.^[32] Essential medicines are intended to be available within the context of a functioning health system, at all times, in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price, the individual and the community can afford."^[33]

While the practice and use of medicines differ by culture, in today's age, it seems unimaginable that people are d from lack of access to basic medical treatments or medicines. Yet in the 21st century, access to safe and affordable medicines is not guaranteed to all. The disparity of access to medicines has been referred to by WHO as the "global drug gap."^[34] According to the WHO, approximately one-third of the global population still does not have access to basic medicines. This number rose to 50% in the poorest parts of Asia and Africa.^[35]

To address this wide gap in access to medicines, and in line with the Alma Ata Declaration to promote equitable access to medicines, the WHO has developed the framework for access to essential medicines.^[36] This framework considers rational selection of medicines, affordable prices, sustainable financing, and reliable health and supply systems. In November 2018, Libya's first EML was developed through the collaboration between Libyan pharmacy administration, and WHO under the EU- funded SHAMS project. The importance of the LEML in the health-care delivery system of Libya cannot be overemphasized.

Therefore, as a matter of policy directive, henceforth, all medicines to be procured by the public health facilities in Libya should be drawn from the LEML. From now onward, the LEML becomes an essential companion for all disciplines of health-care workers, general practitioners, specialists, and

health-care management personnel as well as students and interns.^[37]

Prescription practice and behavior

Poor prescription practices result in increased side effects, ADRs, and high cost of treatment. Furthermore, medication errors are a significant global concern and can cause serious medical consequences for patient. In recent years, an increasing number of articles have been published with the aim of describing programs designed to improve physician prescribing behavior. As powerful, expansive and new clinical information about them become more available, the need for accurate prescribing decisions grows proportionately.^[38] On the other hand, several researches were trying to analyze and to understand the factors which influence physician prescribing decisions and practice. The related literature suggests several factors that may have a role in influencing the prescribing behavior of physicians.^[39-42] Some factors are fixed and they do not offer any opportunity for modification and improvements in prescribing behavior. Such factors for instance include the age and sex of the physician or the patient, the socioeconomic characteristics of the practicing area or the reimbursement status of therapy.^[43,44]

A study in Jeddah, Saudi Arabia showed that 51% of the prescriptions included diagnosis, in which 62% included the recommended drug dosage, whoever 7% of drug interactions were reported between the prescribed drugs, 17% of the physicians prescribed drugs that prevented the adverse effects used for diagnosis. Prescriptions for chronic conditions were scrutinized to be 18%. It was noteworthy that 29% of the pharmacists reported difficulty in reading the handwriting of prescriptions.^[45]

In an Indian study, about 1609 prescriptions were analyzed. On an average, 2.2 drugs were prescribed per patient. Nearly 84% of the drugs were prescribed from the essential drug list. Antibiotics were prescribed in 45.3% of prescriptions, followed by vitamins (34.8%) and nonsteroidal anti-inflammatory drugs (33.9%). Drugs were prescribed in their generic names in 70% of cases. Diseases of the ear, nose, and throat (18%) were most common followed by the diseases of the gastrointestinal and renal (17%) and musculoskeletal system (16%). Only 40% of children suffering from diarrhea received oral rehydration salts while 80% of them received antibiotics. Among cases of upper respiratory tract infection, nearly 75% received antibiotics.^[46]

Prescription pattern in Libya

Good prescribing is an essential element for successful therapy. Prescribing of medicines continues to grow at rate of 10% a year. More than two-thirds of all general practice consultations generate a prescription.

In one study, 700 prescriptions were collected in Libya (400 prescriptions from Tripoli and 300 prescriptions from Al-zawia). Results showed that the average consultation time per patient of 5–10 min (44%). This time may be satisfactory

for common and certain known diseases in comparison with other studies which showed a very low time, about 1 min. Furthermore, dispensing time per patient was short, 1–3 min (51%).^[47]

A study in Benghazi revealed that drug use pattern in private practice was not in line with the WHO drug use guidelines. Information missing with regard to patient sex may lead to serious adverse effects particularly in the pregnant or lactating female. In addition, the address of patient is again essential for easy contact in case of erroneous prescribing or dispensing. Information regarding both the patient and the prescriber were missing in most of the prescription. This is irresponsible prescribing behavior particularly in the light of the fact that a prescription is considered a legal document that can be used in court. Such an issue of using a prescription for or against the prescriber or dispenser may arise in case of any serious health hazard.^[48]

An antibiotic study was performed on a total of 185 doctors, showed that about 66.7% of the responding stated that they do follow standard infection control and prevention precautions. 37.4% of the respondents answered that they do prescribe antibiotics based on culture and sensitivity tests and exactly the same rate reported that they do not. About 75% of the doctors stated that they follow antibiotic prescribing guidelines. Only 18% declared that they may prescribe antibiotics even if they know they are not really needed. Most of those prescribers justified this practice due to the demand of patients. According to the results of this study, doctors seemed to follow general guidelines for antibiotic prescription and infection control, but cultures were not routinely done.^[49]

Previous studies reported that the average number of drugs per prescription reported to be 2.85–3.00.^[47,50] The value was higher than the WHO recommended optimum level of 1.6–1.8. The possible negative consequences of prescribing a large number of drugs per prescription are increased the occurrences of side effects, drug–drug interactions, patients' noncompliance with the drug regimen, and raised pharmacotherapeutic expenses as a result of the large number of drugs to be taken. The average quantity of drugs prescribed per prescription is influenced by the prevalence of diseases, the lack of clinical practice guidelines, financial incentives for prescribers, physician incompetence, culture, and other factors.^[47] As a result, different values have been reported in various parts of Libya. Unnecessarily prescribed drugs could have a financial impact on the health-care system. Conversely, rational prescription can prevent medicine waste and minimize adverse effects on patients while lowering costs.^[51]

CONCLUSION

The observation of prescribed medicine dispensing practices at community pharmacies produced a picture of the processes and activities triggered by a customer with a prescription in an everyday practice setting. To ensure that drugs are used rationally in Libya, we recommend re-training and ongoing

education for prescribers. We encourage clinical pharmacists to take responsibility and actively participate in drug prescribing and dispensing practice, particularly in the outpatient setting. Furthermore, we advocate for effective and continuous drug monitoring.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. De Vries TP, Henning RH, Hogerzeil HV, Fresle DA. Guide to Good Prescribing: A Practical Manual. Geneva: World Health Organization; 1994. Available from: <http://apps.who.int/medicinedocs/en/d/Jwhozip23e>. [Last accessed on 2022 Oct 30].
2. Salmasi S, Khan TM, Hong YH, Ming LC, Wong TW. Medication errors in the Southeast Asian countries: A systematic review. PLoS One 2015;10:e0136545.
3. Alsulami Z, Conroy S, Choonara I. Medication errors in the Middle East countries: A systematic review of the literature. Eur J Clin Pharmacol 2013;69:995-1008.
4. Kamuhabwa AR, Ignace AM. Dispensing practice of prescribed medicines in the private pharmacies in urban areas of Tanzania. Indian J Pharm Sci 2015;77:542-9.
5. Laing R, Hogerzeil H, Ross-Degnan D. Ten recommendations to improve use of medicines in developing countries. Health Policy Plan 2001;16:13-20.
6. Samsiah A, Othman N, Jamshed S, Hassali MA, Wan-Mohaina WM. Medication errors reported to the national medication error reporting system in Malaysia: A 4-year retrospective review (2009 to 2012). Eur J Clin Pharmacol 2016;72:1515-24.
7. Promoting Rational Use of Medicines: Core Components – WHO Policy Perspectives on Medicines. No. 005; 2002. Available from: <http://www.apps.who.int/medicinedocs/en/d/Jh3011e/>. [Last accessed on 2022 Oct 30].
8. Thomas M. Rational drug use and the essential drug concept. In: Parthasarthy G, Karin NY, Hansen F, Nahata MC, editors. Text Book of Clinical Pharmacy Practice. Hyderabad: Orient Longman; 2004. p. 72.
9. De Vries TP, Henning RH, Hogerzeil HV, Fresle DA. World Health Organization. Guide to Good Prescribing – A Practical Manual. Its WHO: World Health Organization; 1994. Available from: <https://apps.who.int/iris/handle/10665/59001>. [Last accessed on 2022 Oct 30].
10. Björnsson ES. Hepatotoxicity by drugs: The most common implicated agents. Int J Mol Sci 2016;17:224.
11. Periáñez-Párraga L, Martínez-López I, Ventayol-Bosch P, Puigventós-Latorre F, Delgado-Sánchez O. Drug dosage recommendations in patients with chronic liver disease. Rev Esp Enferm Dig 2012;104:165-84.
12. Munar MY, Singh H. Drug dosing adjustments in patients with chronic kidney disease. Am Fam Physician 2007;75:1487-96.
13. Sherif IO. Amelioration of cisplatin-induced nephrotoxicity in rats by triterpenoid saponin of Terminalia Arjuna. Clin Exp Nephrol 2015;19:591-7.
14. Kalra BS. Cytochrome P450 enzyme isoforms and their therapeutic implications: An update. Indian J Med Sci 2007;61:102-16.
15. Aronson JK, Hardman M. ABC of monitoring drug therapy. Why monitor drug therapy? BMJ 1992;305:947-8.
16. Kanakambal S, Murugesh N, Shanthi M. Drug prescribing pattern in a tertiary care teaching hospital in Madurai (Tamil Nadu). Indian J Pharmacol 2001;33:223.
17. Figueras A. The use of drugs is not as rational as we believe. But it can't be! The emotional roots of prescribing. Europ J Clin Pharmacol 2011;67:433-5.
18. Hashemi S, Nasrollah A, Rajabi M. Irrational antibiotic prescribing: A local issue or global concern? EXCLI J 2013;12:384-95.

19. Ojo MA, Igwilo CI, Emedoh T. Prescribing patterns and perceptions of health care professionals about rational drug use in a specialist hospital clinic. *J Public Health Afr* 2014;5:242.
20. Long J, Rybacki J. *The Essential Guide to Prescription Drugs*. New York: Harper Perennial; 1995.
21. Desalegn AA. Assessment of drug use pattern using WHO prescribing indicators at Hawassa University teaching and referral hospital, South Ethiopia: A cross-sectional study. *BMC Health Serv Res* 2013;13:170.
22. Basaran NF, Akici A. Patients' experience and perspectives on the rational use of drugs in Turkey: A survey study. *Patient Prefer Adherence* 2012;6:719-24.
23. Otoom S, Culligan K, Al-Assoomi B, Al-Ansari T. Analysis of drug prescriptions in primary health care Centres in Bahrain. *East Mediterr Health J* 2010;16:511-5.
24. Patel MK, Barvaliya MJ, Patel TK, Tripathi C. Drug utilization pattern in critical care unit in a tertiary care teaching hospital in India. *Int J Crit Illn Inj Sci* 2013;3:250-5.
25. Mulwa NC, Osanjo GO, Ndwigah SN, Kaburi AN, Muriuki GA. Patterns of prescribing practices in Makueni county referral hospital, Kenya. *Afr J Pharmacol Therapeut* 2015;4:161-8.
26. Sisay M, Mengistu G, Molla B, Amare F, Gabriel T. Evaluation of rational drug use based on World Health Organization core drug use indicators in selected public hospitals of eastern Ethiopia: A cross sectional study. *BMC Health Serv Res* 2017;17:161.
27. Zelalem A, Sisay M, Vipham JL, Abegaz K, Kebede A, Terefe Y. The prevalence and antimicrobial resistance profiles of bacterial isolates from meat and meat products in Ethiopia: A systematic review and meta-analysis. *Int J Food Contaminat* 2019;6:1.
28. Gezmu T, Regassa B, Manilal A, Mama M, Merdekios B. Prevalence, diversity and antimicrobial resistance of *Bacteria* isolated from the UTI patients of Arba Minch province, Southern Ethiopia. *Transl Biomed* 2016;7:3.
29. World Health Organization, 2015. The selection and use of essential medicines (2015) - TRS 994. WHO Technical Report Series, No. 994. Available from: <https://www.who.int/publications/item/9789241209946> [Last accessed on 2022 Oct 30].
30. WHO Expert Committee on the Selection of Essential Drugs & World Health Organization. ([1977]). The selection of essential drugs : report of a WHO expert committee [Meeting held in Geneva from 17 to 21 October 1977]. World Health Organization. <https://apps.who.int/iris/handle/10665/41272>. [Last accessed on 2022 Oct 30].
31. Hogerzeil HV. The concept of essential medicines: Lessons for rich countries. *BMJ* 2004;329:1169-72.
32. Duong MH. Exploring the Essential Medicines List Concept PhD Diss; 2015. Available from <https://ses.library.usyd.edu.au/handle/2123/15331?show=full>. [Last accessed on 2022 Oct 30].
33. World Health Organization The Selection and Use of Essential Medicines. Report of the WHO Expert Committee 2005 Including the 14th Model List of Essential Medicines. Geneva: World Health Organization; 2006. (WHO Technical Report Series, No. 933). Available from URL: <http://www.who.int/medicines>. [Last accessed on 2022 Oct 30].
34. World Health Organization. Medicines Strategy: Framework for Action in Essential Drugs and Medicines Policy 2000-2003. Geneva: World Health Organization; 2000. p. 1-81.
35. Equitable Access to Essential Medicines: A Framework for Collective Action. WHO Policy Perspectives on Medicines. Available from: <http://www.who.int/medicines/areas/access/en/>. [Last accessed on 2022 Oct 30].
36. Hogerzeil HV. Essential medicines and human rights: What can they learn from each other? *Bull World Health Organ* 2006;84:371-5.
37. Libyan Essential Drug List. First Edition. Available from: https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/annex_8_leml2018_1st_edition_apr2019.pdf. [Last accessed on 2022 Oct 30].
38. Soumerai SB, McLaughlin TJ, Avorn J. Improving drug prescribing in primary care: A critical analysis of the experimental literature. *Milbank Q* 1989;67:268-317.
39. Howie JG. Clinical judgement and antibiotic use in general practice. *Br Med J* 1976;2:1061-4.
40. Hartley RM, Charlton JR, Harris CM, Jarman B. Patterns of physicians' use of medical resources in ambulatory settings. *Am J Public Health* 1987;77:565-7.
41. Carrin G. Drug prescribing: A discussion of its variability and (ir) rationality. *Health Policy* 1987;7:73-94.
42. Schumock GT, Walton SM, Park HY, Nutescu EA, Blackburn JC, Finley JM, et al. Factors that influence prescribing decisions. *Ann Pharmacother* 2004;38:557-62.
43. de Bakker DH, Coffie DS, Heerdink ER, van Dijk L, Groenewegen PP. Determinants of the range of drugs prescribed in general practice: A cross-sectional analysis. *BMC Health Serv Res* 2007;7:132.
44. Watkins C, Harvey I, Carthy P, Moore L, Robinson E, Brown R. Attitudes and behaviour of general practitioners and their prescribing costs: A national cross sectional survey. *Qual Saf Health Care* 2003;12:29-34.
45. Kamel FO, Alwafi HA, Alshaghab MA, Almutawa ZM, Alshawwa LA, Hargas MM, et al. Prevalence of prescription errors in general practice in Jeddah, Saudi Arabia. *Med Teach* 2018;40:S22-9.
46. Tripathy JP, Bahuguna P, Prinja S. Drug prescription behavior: A cross-sectional study in public health facilities in two states of North India. *Perspect Clin Res* 2018;9:76-82.
47. Sherif F. An evaluation of the prescribing patterns of drugs in Libya. *Jam Med J* 2008;8:203-6.
48. Aljarari NM, Sharif SI, Jaber AK, Garini AS, Awad AS, Hamed FA. Prescribing patterns of gastrointestinal drugs in private clinics in Benghazi-Libya. *Int J Basic Clin Pharmacol* 2017;6:113-6.
49. Elelma R, Benkhaial A, Elbabour F. Antibiotic prescribing practices in Libya: A cross-sectional survey. *Tripolitana Med J* 2018;7:33-7.
50. Atia A. Physician trends of drug prescription in Libya: A pharmacoepidemiological study. *Pharmacophore* 2019;10:33-8.
51. El Mahalli AA. WHO/INRUD drug prescribing indicators at primary health care Centres in Eastern province, Saudi Arabia. *East Mediterr Health J* 2012;18:1091-6.