MEDICAL SCIENCE

To Cite:
Elssied HG, Alsaedi R, Alharbi R, Almughathawi R, Alraddadi L, Alzughaibi A. Knowledge, attitude and practices of self-medication and rational drug use habits among medical students in Madinah city. *Medical Science* 2023; 27: e320ms3052.
doi: https://doi.org/10.54905/disssi/v27i138/e320ms3052

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Peer-Review History
Received: 19 May 2023
Reviewed & Revised: 23/May/2023 to 22/July/2023
Accepted: 26 July 2023
Published: 03 August 2023

Peer-review Method
External peer-review was done through double-blind method.

Medical Science
pISSN 2321–7359; eISSN 2321–7367

Knowledge, attitude and practices of self-medication and rational drug use habits among medical students in Madinah city

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ABSTRACT

Background: Rational use of drugs require that patient receive medicine appropriate to their clinical needs in a dose that meets their own individual requirements for an adequate period at the lowest cost to them and their community. In the real world, prescribing patterns do not always conform to these ideals and what prevails instead is inappropriate, irrational prescribing. *Aims:* This study aims to estimate the prevalence of self-medication practices and rational drug use among undergraduate University students in Madinah city, in order to update the information in this region. *Methods:* The study adopted a cross sectional study conducted on undergraduate medical students, as the sample size calculated using the Epi Info program accordingly the study population was (357) students in Madinah city in a period from (September 2022 to September 2023). A questionnaire was passed on digitally. *Results:* The practices of the participants towards experience any side effects while taking medication (28.9%) abandon the medication, while (28.2%) consult to physician, (19.6%) consult to the pharmacist, (13.2%) discontinue the course of the medication and start a new one with the same affect, (6.2%) consult to the family, 3.9% do nothing. *Conclusions:* The understanding, perspective, and behaviors of self-medication and drugs among medical students are substantially low with increasing use of self-prescribed medications, and antibiotics.

Keywords: Rational, drug use, medical students, antibiotics, medications, self-prescription.

1. INTRODUCTION

According to the World Health Organization (WHO), the majority of the drugs are prescribed, delivered, or sold incorrectly, and half of patients are

not adherent to the prescription. Pharmaceuticals are frequently used in economically inefficient ways in health- care systems around the world, particularly in developing countries. Patients must be given medication that is suitable for their clinical circumstances in a dose that satisfies their unique demands for an acceptable amount of time at the least expensive cost to them and their community in order to use pharmaceuticals rationally (Al-Jamea et al., 2020; Lima et al., 2022).

Self-medication is defined by the World Health Organization as the patient's self-administration of medications to address a recognized condition or symptom without prior medical consultation (Hikmiyah et al., 2022). Self-medication and the habitual use of non-prescribed medications can result in a number of hazardous side effects (Curry et al., 2005). Such undesirable consequences include drug-to-drug and medication-to-food interactions, allergic responses, drug tolerance, and masking of other clinical symptoms that may be suggestive of a serious clinical condition (Hassan et al., 2023).

The risk is substantially higher in elderly individuals, as studies show that non-prescription medications are given up to seven times more frequently than prescribed pharmaceuticals (Tobaiqi et al., 2021). The self-medication behavior of university students has been the subject of this study, which have highlighted important factors such as socio-demographic contexts, lifestyle, ease of access to and medicines accessibility, comprehension, promotion, and a high level of education (Al-Jamea et al., 2020). Another feature of this study is that it provides information on self-medication with a variety of medications, whereas previous studies on self-medication where dedicated mainly towards antibacterial antibiotics (36.9%) (Badzi and Ackumey, 2017).

The newest findings of the study may not be typical due to the study's methodology, which depended on self-reporting, and the sample size of 991 students, which was limited due to the unwillingness of many pharmacists to participate (Al-Ghofaili, 2021). Because the questionnaire was self-reported, it is possible that the self-medication activities were under- or over-reported (Paula-Martins et al., 2002). If medical and other health-related faculties were eliminated, a certain prevalence of self-medication was estimated among non-healthcare students in KSA. To the best of my knowledge, this study has by far the largest sample size in university settings when compared to previous studies. Self-medication with antibiotics has declined since then, according to the current study (Okyay and Erdoğan, 2017).

As a result, multidisciplinary actions involving medical specialists, medical institutions, educational institutions, non-profit organizations, and the media "in educational programs" were discovered to be critical in reducing the adverse health effects of misuse of drugs and self-prescribing (Okyay and Erdoğan, 2017). Self-medication is a problem that must be addressed. Prior Saudi Arabian research Al-Mohamadi et al., (2013) indicated that dispensing over the counter drugs is common. However, no previous studies from the Kingdom have focused on gathering a particular rate of yearly sales of non-prescribed drugs (Al-Ghofaili, 2021).

There has been an increase in research on the concept of sensible drug use since the 1970s (RUD). Two-thirds of people who took part had adequate information and a favorable attitude toward self-medication (SM). Furthermore, 50% of the respondents said they have used SM in the preceding six months, demonstrating that they understand the significance of responsible SM. Al-Maarefa University (UM) has very comprehensive study regards our subject and includes all medical and non-medical students to support these findings. It is critical that their perspectives be understood and effectively prepared in order for them to practice logical and responsible SM (Gowdar et al., 2021).

One of the study's drawbacks is that it was confined to the sample that was chosen owing to time and resource restrictions (Okyay and Erdoğan, 2017). The point of this study is to assess the occurrence of self-medication practices among ungraduated students in Madinah city and assess habits related to RUD, putting in mind the lack of sufficient prior results or research on this population.

2. METHODS

Study design

This descriptive cross-sectional study was carried on undergraduate medical students in Madinah city.

Study Area/Setting

The study was conducted in Almadinah city. Medina is one of Islam's two holy cities, therefore being a popular stop for pilgrims in Saudi Arabia performing Hajj or Umrah. The city is based around Al-Masjid a Nabawi, commonly known as the Prophet's Mosque, which was construct by Prophet Muhammad peace been upon him and serves as his burial site. The city's predicted population in 2020 was (1,488,782), making it the fourth most populous city in the country. The city has many universities; two of them have medical colleges. The institutions chosen to conduct this study were Taibah University and Al-Rayan Medical Colleges. Approximately 300 female and male medical students graduate from these medical colleges per year.

Time period

From September 2022 to September 2023.

Study Population/Subjects

The study target population is all undergraduate medical students in Al-Rayan colleges and Taibah University in Madinah city.

Inclusion criteria

All male and female undergraduate medical students in Al-Rayan colleges and Taibah University in Madinah city.

Exclusion criteria

Non-medical students, graduated medical students, undergraduate medical students outside Madinah city.

Sample Size

It was estimated using the open Epi scientific electronic program to be as 357 students in 95% confidence interval and with a 5% margin of error.

Sampling Technique

The study employed non-probability sampling technique, namely convenience sampling. The reason for selecting this sample technique is the simplicity of sampling, the ease of research and data collection in a brief period of time, efficiency and furthermore the affordability of this technique, putting in mind the high rate of bias generated by it.

Data Collection methods, instruments used, measurements

Well-structured and validated questionnaire was submitted. Structured questionnaire was distributed online among social media to undergraduate medical students in Madinah city. The questionnaire has 11 questions. The duration of answering the questions was 2-3 minutes.

Data Management and Analysis Plan

The initial step of data analysis was screening the data for missing. Then, the data were entered in SPSS 26. A random sample of the data was selected to check its accuracy. Then, the study used descriptive statistics, namely frequency and percent to describe the correct and false answer for each question. The level of significance was set at 0.05.

Ethical Considerations

Approval of the study was obtained from Al-Rayan ethical committee, under the code: HA-03-M-122-015. An explanation of the study aiming to a written approval before starting the study. The aim of the study was explained to the participants, and their information should be used for the study purposes only, and they have right to discontinue at any moment they wish. In addition, the confidentiality of the study participants was maintained by assigning each participant with random response without names.

3. RESULTS

The findings presented here determine the currency of self-medication behaviors among ungraduated medical students in Madinah city, as well as habits associated with RUD. The electronic survey which was distributed among the students shows the following results:

Table 1 Knowledge and attitude towards drug use

Variable	Yes	No	P-value
Do you use someone else medicines or buy medicines from pharmacy without prescription?	283 (73.3%)	103 (26.7%)	0.04
Do you have medicines prescribed without being sick or buy and keep at home in case of need?	179 (46.4%)	207 (53.6%)	0.34
Have you taken any antibiotics in the last 12 months?	219 (56.7%)	167 (43.3%)	0.45

Do you use antibiotics on your own without a physician's examination?	110 (28.5%)	276 (71.5%)	0.53

Table 1 show that (73.30%) of the participants not committed to prescription, (46.40%) have surplus prescribed medications in case of need while (53.60%) are not, (56.70%) have been taken antibiotics in the last 12 months, (71.50%) use antibiotics without physician consultation.

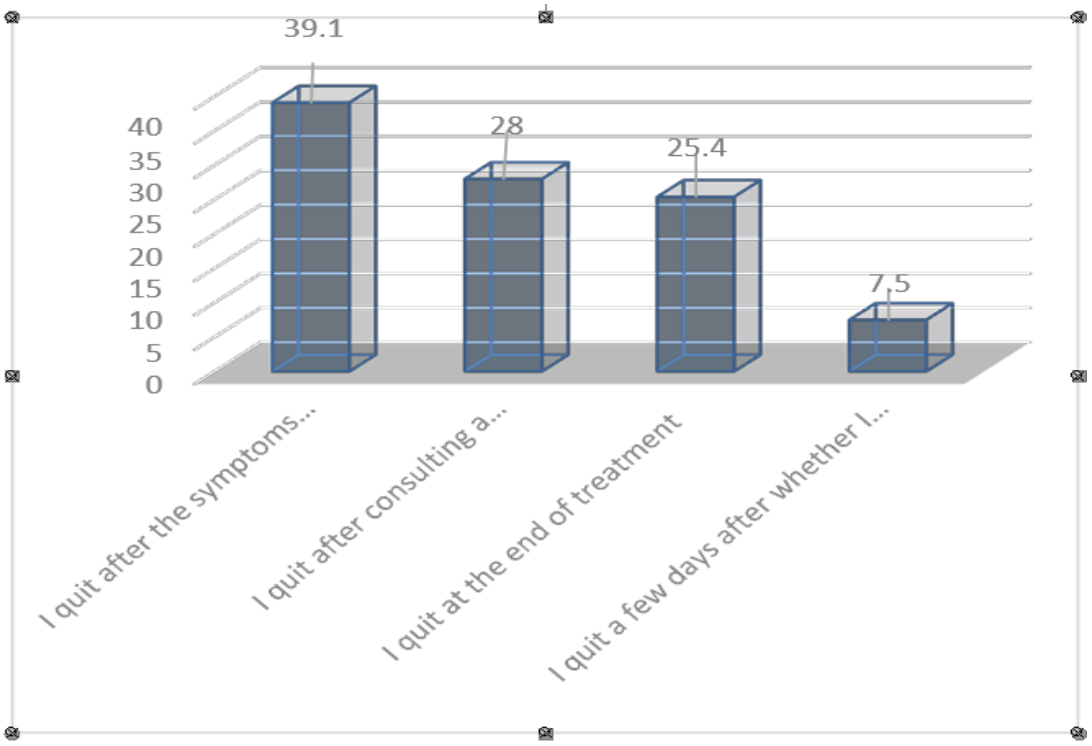

Figure 1 Attitude towards duration of using antibiotics among the participants (P-value 0.13)

Figure 1 show that (39.1%) of the participants were not compliant to medication, (28%) ceased the treatment after consultation, (25.4%) follow the prescription duration, however while (7.5%) quit a few days after whether they recovered or not.

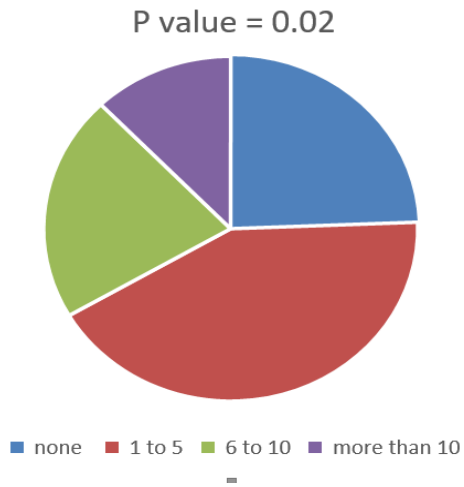

Figure 2 Attitude regarding storage of unused medications (P-value = 0.02)

Figure 2 shows that (42.4%) of the participants have got 1 to 5 boxes which is unused medications, (24.3%) have none, while (21.2%) have 6 to 10 boxes, and (12.1%) have more than 10 boxes.

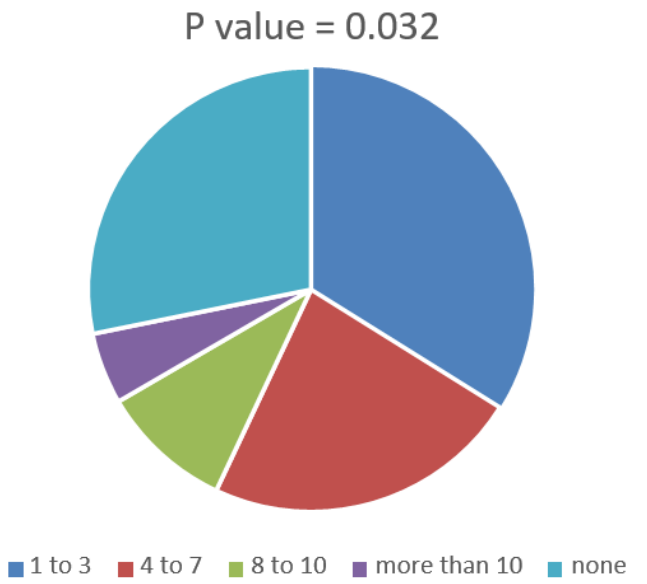

Figure 3 Knowledge regarding disposal of expired drugs without opening the box (P-value = 0.032)

In Figure 3 we conclude that (34.1%) of the participants dispose 1 to 3 expired unused medications, (28.2%) have not discarded it, while (23%) have been disposed from 4 to 7 unused expired drugs, (9.6%) dispose from 8 to 10, the rest of participants (5.1%) dispose drugs without even opening the box, since the expiry date has lapsed.

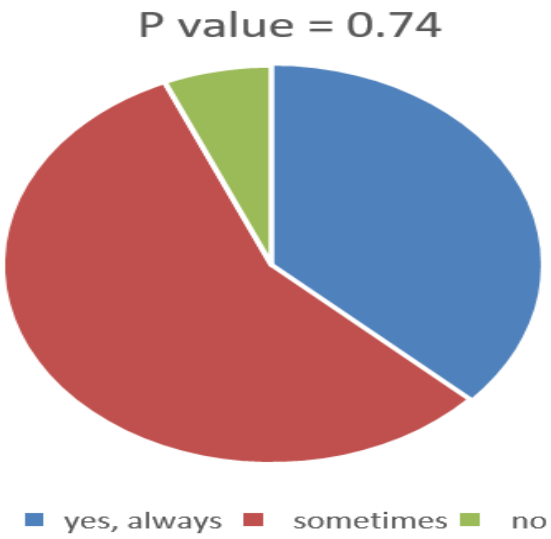

Figure 4 Knowledge and perception towards reading the instruction of the medication they are using (P-value = 0.74)

Figure 4 demonstrates that (56.8%) of the participants adhere to the guidance in the brochure of the medication occasionally, while (36.7%) have consistently checked, and (6.5%) are not.

Table 2 shows the results of three questions estimating the knowledge, attitude and practices of self-medication and rational drug use as follows:

1. Regarding understanding the information in the prospectus of the drug the participants using: (47.2%) fully understand the information, while (46.6%) partially understand, and (6.2%) do not.
2. Regarding the practices of the participants towards experiencing any side effects while taking medication: (28.9%) abandon the medication, (28.2%) consult to physician, (19.6%) consult to the pharmacist, (13.2%) discontinue the course of the medication and start a new one with the same affect, (6.2%) consult to the family, (3.9%) do nothing.

3. Regarding Knowledge about the expression "rational drug use" and "rational drug use of antibiotics": (66.6%) of the participants never perceived the expression rational drug use and rational drug use of antibiotics before, while (33.1%) recognize it.

Table 2 Knowledge and practice of self-medication and rational drug use

Variable		No	%	P-value
Do you understand about the information in the prospectus of the drug you are using?	I understand fully	182	47.2	0.002
	I partially understand	180	46.6	
	No, I understand nothing	24	6.2	
What do you do if you experience any side effects while taking medication?	I quit the medication	112	28.9	0.04
	I quit the medicine and start a new one with the same effect	51	13.2	
	I consult to a pharmacist	76	19.6	
	I consult to a physician	109	28.2	
	I consult to my family	24	6.2	
	I do nothing	15	3.9	
Have you heard the expression of rational drug use and rational use of antibiotics before?	Yes	128	33.3	0.52
	No	258	66.6	

4. DISCUSSION

The study's main objective is to assess Knowledge, attitude, and practices of self-medication and medical students' drug usage habits reasonably in Madinah city. Results found that overall habits and rational medication use require both increased awareness and monitoring of the actions of self-prescriptions (Rolita and Freedman, 2008). This study result found that medical student's comprehension of the information in the prospectus of the drug used (47.2%) of which understand fully, (46.6%) chose partially understand, and only (6.2%) answered the information is incomprehensible in a study conducted in Turkey in 2017 (Memişoğlu and Bilen, 2021) on rational drug use amongst medical students, a result about medical students understanding information in the prospectus of the drug showed, (22.4%) fully understood, while (73.3%) partially understood, and (4.3%) all was unfathomable.

In this study results we notice the insignificant difference between the population who fully and partially understand, while when compared to the Turkish study it is noticed that there is (51%) gap between fully and partially understanding medication prospectus, this could be due to major variations, which affects the two communities. A study on knowledge of rational drug use among College Students in Zunyi City, China in 2022 Fakeye et al., (2010) found that (50.7%) of the students believed that it is necessary to popularize the Knowledge of rational drug use on campus. In comparison, only (1.8%) expressed that it is entirely unnecessary.

Another study conducted in India in 2020 (Al-Ghofaili, 2021) aimed at medical students, have showed results of knowledge regarding rational drug use, that (8.8%) have no comprehension of this term and (84.8%) have some knowledge of the term rational drug use, while only (6.3%) are fully informed. This study is aimed at medical students as well as the previous study, has shown that (33.3%) confirmed, and (86.6%) denied answering the question about the Knowledge of the expression of rational use of antibiotics before rational drug use before.

All these studies correspond to the importance of the consequential need to enhance the knowledge of the expression "rational drug use" even though there is a geographic difference between where those studies were conducted. In this study, the results of inquiring medical students about what action needs to be taken when experiencing any side effects caused by a medication: Around (28.9%) answered that they would not adhere to the medication, (13.2%) would terminate the medication and use alternative medication, (19.6%) answered resolve to consult a pharmacist, while (28.2%) would consult a physician, and (6.2%) chose consult a family member, while only (3.9%) answers indicated avoiding any change.

In comparison to A Turkish study conducted in 2017 (Al-Jamea et al., 2020), it was concluded that the results of asking medical students about what actions to take when experiencing any side effects caused by a medication: Around (32%) answered that they would not adhere to the medication, (2%) would discontinue the medication and use alternative medication, (4.8%) answered resolve to consult a pharmacist, while (61.4%) would consult a physician, and (4.2%) chose consult a family member, while only (2.2%) answers indicated avoiding any change.

Comparing the percentages of both studies shows that there's more comprehension of the danger of side effect in turkey, since results show that the majority would either discontinue the medication immediately or consult a physician, rather than this study results which demonstrates that only around half of the participants would consult a physician or terminate the medication. This might be due to cultural or educational differences between the two communities. Many studies were done regarding rational drug use, but very few were done on medical students. In this study, many students (73.3%) are non-adherent to rational drug use by taking other's prescriptions.

A study that corresponds to this study was conducted in JN Medical College in Belgaum in 2017 among second-year medical students (Rutter, 2015) whereas over 50% of the students (65.6%) bought OTC medications, the remaining used medications from physicians' samples, previous prescriptions remaining's and a friend's medication, and the reason for that is that they are able to be approached without a prescription and medical students believe they have enough knowledge towards medications.

In another study that was done in India about Self-Medication Knowledge, Perspective, and Behavior Among Students in the second academic year of Medical College in 2013 (Curry et al., 2005), (38.1%) of participants relayed on past prescriptions and (43.3%) of students thought that it is unnecessary to consult a physician and rather (26.8%) used it for fast recovery and (7.2%) used it because they felt confident in the knowledge they had about medicines. However, the limitation of their study was that the sample size was small (97), and it was only conned to second-year students.

In this study (71.5%) have not used antimicrobial without consulting a physician, and these results mismatch another study that was done in terms of understanding, perspective, and execution of pharmacy and medical students on self-medication in Iran in 2021. where (74.4%) used it, and that is due to the guidelines and management protocols applied on dispensing antibiotics without prescription in Saudi Arabia. Another finding in this study is that (56.7%) have used antibiotics in the past year which lines up to another study that was conducted about knowledge, attitude, practice and viewpoints on undergraduate students in Riyadh at 2021.

Amoako et al., (2003) (46%) have used antibiotics in the past 6 months. These differences are due to the period where it was expanded to one year in this study but still shows more than half of students overuse antibiotics regardless of the rules and regulations of antibiotic's use.

5. CONCLUSION

The understanding, perspective, and behaviors of self-medication and drug use habits among medical students in Taibah University and Al-Rayan Medical Colleges is substantially low with increasing use of self-prescribed medications and antibiotics, as found in this study results, with little/no knowledge of the possible adverse effect. Educating students, both medical and nonmedical, is a must to avoid the percentages from increasing.

Recommendations

In order to improve knowledge, attitude, and practice regarding rational drug use, the authors recommend promoting:

Capacity building: Advocate Knowledge about rational drug use and the adverse effects of misuse drugs, and endorse arrangement of workshops, seminars, and training programs for further knowledge among students, especially in medical fields of the adverse effects of self-prescribing medications.

Laws, guidelines, and protocols: Advice to increase regulations and restrictions of "over the counter" medications to reduce the increasing rates of irrational self-prescribed medications.

Encourage research: More studies on RUD in different areas should be encouraged by providing the needed resources and administration of workshops providing the knowledge, in order to overcome the lack of data in this particular aspect.

Acknowledgement

The authors would like to acknowledge Al-Rayan Medical Colleges and all study participants.

Author Contributions

All the authors listed have made a substantial and intellectual contribution to the work and approved it for publication.

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Ethical approval

The study was approved by the Research Ethics Committee of Al-Rayan Medical Colleges (Ethical approval code: HA-03-M-122-015).

Informed consent

Written & oral informed consent was obtained from all participants included in this study.

Funding

This study has not received any external funding.

Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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