

**Antibiotics Misuse: trends & attitude among Iraqi physicians****سوء استخدام المضادات الحيوية: الميول والسلوك بين الأطباء العراقيين**

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**الخلاصة:**

**خلفية البحث:** إساءة استخدام المضادات الحيوية هي مصدر قلق صحي في جميع أنحاء العالم ويرتبط بزيادة حدوث المقاومة للمضادات الحيوية. تعد معرفة ومواقف وتوقعات وممارسات الأطباء فيما يتعلق بوصفة المضادات الحيوية ضرورية للتحكم في الاستخدام غير الرشيد للمضادات الحيوية.

**الهدف:** دراسة ومعرفة وسلوك الأطباء العراقيين اتجاه استخدام المضادات الحيوية.

**المنهجية:** هذه الدراسة عبارة عن دراسة مستعرضة ، وقد استخدم التصميم استبيان شمل 350 طبيباً في النجف- العراق، عام 2019. بعد موافقة الخبراء على النسخة النهائية للاستبيان ، تم الحصول الموافقة الأخلاقية من لجنة الأخلاقيات الطبية في كلية الطب ، ثم تم إرسال رابط الاستبيان إلى مجموعة من الأطباء العراقيين المقيمين في محافظة النجف من خلال مجموعة What's App التي يديرها نقابة الأطباء العراقيين فرع النجف، وتم جمع الردود تلقائياً بواسطة Google form.

**النتائج:** 55 من أصل 350 طبيباً قاموا بالرد على استبياننا ، وصف 96.5% من المشاركين المضادات الحيوية لمريضهم ؛ 72.7% يستخدمون مضاد حيوي واحد فقط. هناك 21.8% يستخدم اثنان بينما لا يزال هناك حوالي 2% يستخدم ثلاثة مضادات حيوية

**الاستنتاجات:** المضادات الحيوية وصفت بكمية كبيرة للغاية بين سكان الدراسة. النتائج تسلط الضوء على الحاجة إلى تدريب مقدمي الخدمات الصحية على وصف المضادات الحيوية بأمان. هناك حاجة لتطوير برنامج وطني للإشراف على المضادات الحيوية واعداد دلائل إرشادية حول تشخيص وعلاج العدوى الشائعة.

**التوصيات:** هناك حاجة الى اعداد دلائل إرشادية وطنية خاصة بصرف المضادات الحيوية بشكل امن.

**Abstract:**

**Background:** Antibiotics Misuse is a worldwide health concern associated with an increased incidence of resistance to antibiotics. Knowledge, attitudes, expectations, and practices of physicians regarding antibiotic prescription are essential to control the irrational use of antibiotics.

**Aim of the study:** study the knowledge & attitude of Iraqi physicians towards the use of antibiotics.

**Methodology:** This study is a cross-sectional study and the design used a questionnaire survey involved 350 physicians in Al-Najaf Iraq, 2019. after expert people agreed on the final version of the questionnaire, ethical approval from the faculty of medicine's ethics committee was guaranteed, then the link of the questionnaire was sent to a group of Iraqi physicians residing in Najaf governorate through What's App group made by Najaf chapter of Iraqi medical syndicate and responses were collected automatically by Google form.

**Results:** 55 out of nearly 350 physicians respond to our questionnaire, 96.5 % of the participants had prescribed antibiotics for their patients; 72.7% they use only one antibiotic there is 21.8% uses two while still there is nearly 2% uses three per prescription.

**Conclusion:** Antibiotics highly prescribed among study population. The results highlight the need for training the health providers on safely antibiotic prescription. There is need for development of national antibiotic stewardship program and guidance on common infection diagnosis and treatment.

**Recommendation:** There is a need to set national guidelines for antibiotics prescribing.

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**INTRODUCTION**

Antibiotics are among the most effective and frequently prescribed medicines in hospital settings <sup>(1)</sup>. It's powerful drugs used in the treatment of various bacterial infections, but their misuse and overuse have contributed to bacterial resistance, which reduces their potency, thereby increasing economic burden, patient's prolonged hospitalization, and enhanced mortality <sup>(2)</sup>. In fact, the overuse and misuse of human and animal antimicrobials, together with inappropriate infection prevention has accelerated microbial resistance development <sup>(3)</sup>. Globally, the emergence and dissemination of bacterial antibiotic resistance is a worldwide growing problem and a major threat to public health <sup>(4)</sup>.

Nowadays, antibiotic misuse was considered a serious challenge to the policymakers of public health worldwide <sup>(3, 5)</sup>. These issues could be exacerbated by insufficient professional expertise of primary care physicians. In fact, the misuse of antibiotics was significantly more likely among physicians who are newly employed and are with lower levels of professional

education. A study has been showed that only 8.7% of the antibiotic prescriptions were appropriate for 57,009 patient visits, where adult patients were at a higher risk of unnecessary antibiotics being prescribed <sup>(6)</sup>. Also, a review in the 2014 on antimicrobial resistance revealed that the current annual mortality attributable to AMR is 700,000, which can rise to 10 million by 2050 if action is not taken to reduce misuse of antibiotics <sup>(7)</sup>. About 50% of prescribed antibiotics were of questionable value in most countries. The situation might be not well studied in Iraq. However, antibiotic misuse in Iraq is a serious health issues with no real action to combat it <sup>(8)</sup>. Indeed, proper understanding of misuse and overuse of antibiotics is crucial for health care providers, so this study was conducted to assess the practices, knowledge, and attitude of Iraqi physicians related to antibiotic usage.

## METHODOLOGY

This cross-sectional study was conducted to evaluate the knowledge & attitude of Iraqi physicians towards the use of Antibiotics. Firstly, relevant articles in this field were reviewed. Then expert people had reviewed the questions in addition they add some new questions to the questionnaire. After expert people agreed on the final version of the questionnaire, ethical approval from faculty of medicine's ethics committee was guaranteed. Then we started to transfer these questions into Google form. Two sections were created the first was for demographic characteristics of the participants, while the other for assessing their knowledge and attitude towards the use of antibiotics and the presence or absence of local guidelines and policy to educate the physicians, guide their use and monitor it. Dropdown list was used when we ask for specialty, or multiple-choice form of questions' answers when participants have to select only one like when we ask for the level of health care he/she were working in, the college from which he was graduated & the medical center he was trained or training in, while frequency scale was used for knowing how frequent he uses antibiotics. For evaluating the factors, he thinks they were responsible for antibiotic misuse and the reasons and the symptoms for which he uses antibiotics we used checkboxes where he was allowed to check more than one. For self -prescribing, and whether he/she received an educational course we used Yes or No type of questions' answers. After completing the questionnaire, we sent the link to a group of Iraqi physicians residing in Najaf governorate through what's App group made by Najaf chapter of Iraqi medical syndicate. They were asked to respond to this questionnaire through this introductory statement.

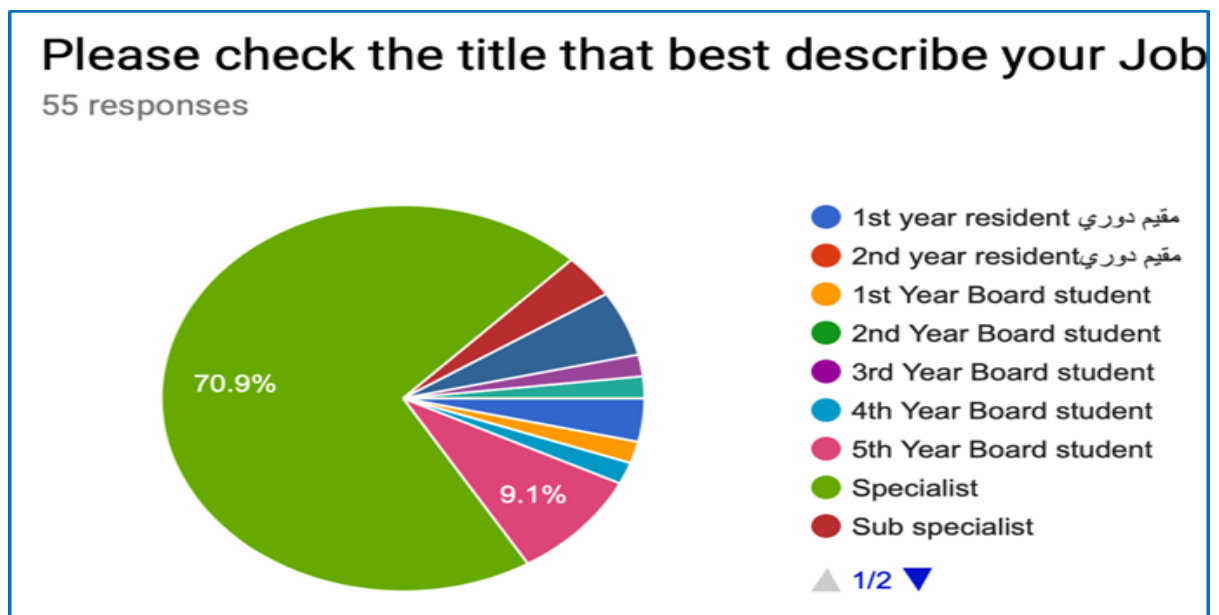
## RESULTS:

**Table (1):** The demographic distribution of study participants

Variables	N	(%)	N (%)
Job description			
Specialist	39	70.9	(55)100
Subspecialist	2	3.6	
Board	7	12.7	
Resident	2	3.6	
Others	1	1.8	
General practitioner	4	7.27	
Workplace			
Primary health care center	5	9.1	(55)100
Secondary health care	21	38.2	
Tertiary health care center	29	52.7	
Specially			

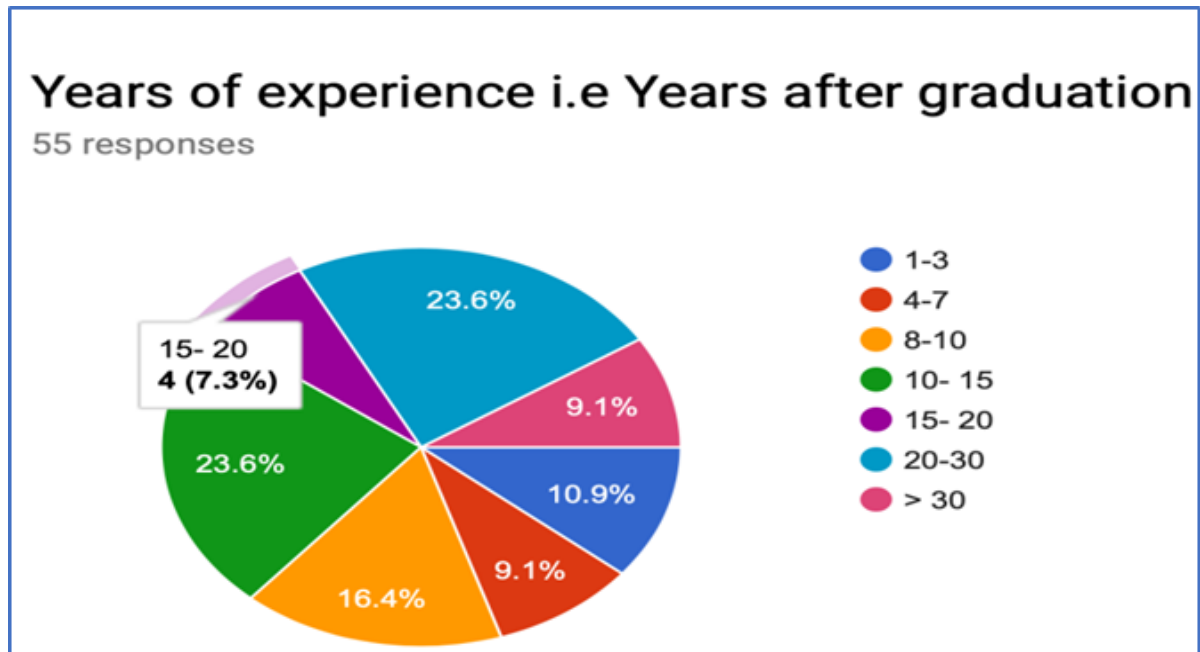
Internal medicine	13	23.6	(55) 100
General surgery	9	16.4	
Orthopedic	1	1.8	
Pediatric	12	21.8	
OBS/GYN	3	5.5	
ENT	2	3.6	
Others	15	27.3	
Experience			
1-3	6	10.9	(55) 100
4-7	5	9.1	
8-10	9	16.4	
10- 15	13	23.6	
15- 20	4	7.3	
20-30	13	23.6	
>30	5	9.1	

Table 1 shows the demographic distribution of the study subjects was illustrated.



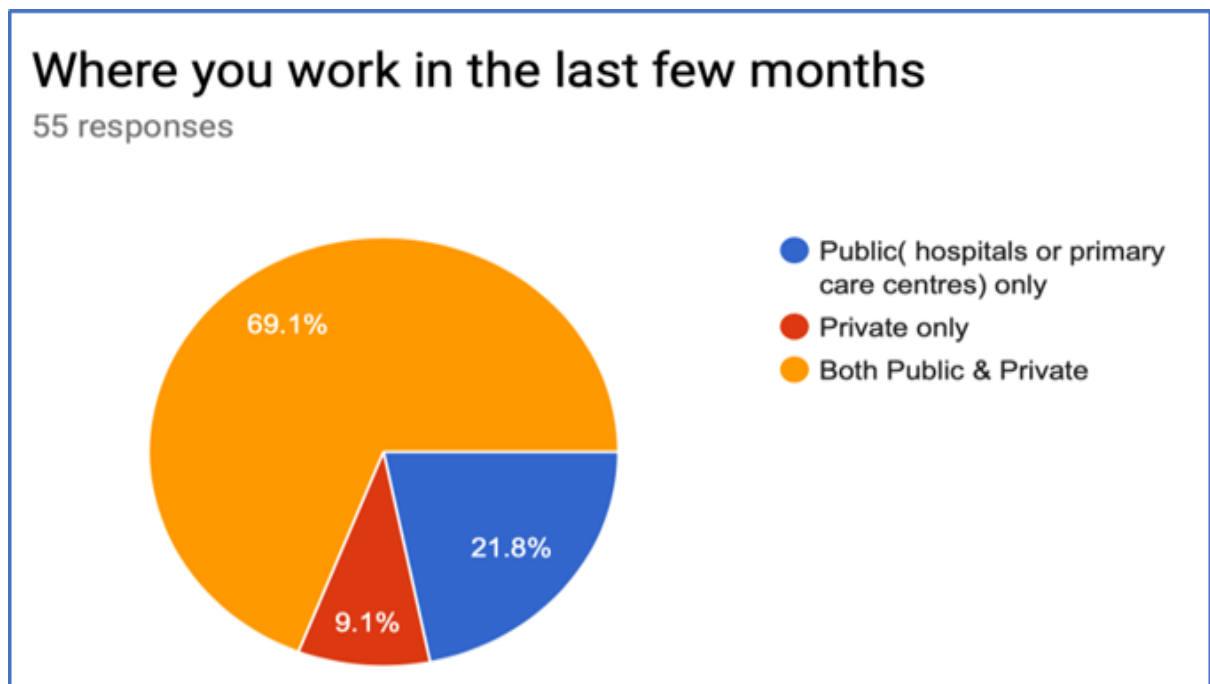
**Figure (1):** Job description of the sample

Figure 1 shows Five out of nearly 350 physicians respond to our questionnaire, 70% were specialists while 9% where 5<sup>th</sup> year postgraduate student and few percent were from 1<sup>st</sup>-year resident, subspecialist, general practitioner (GP) and rural health GP.



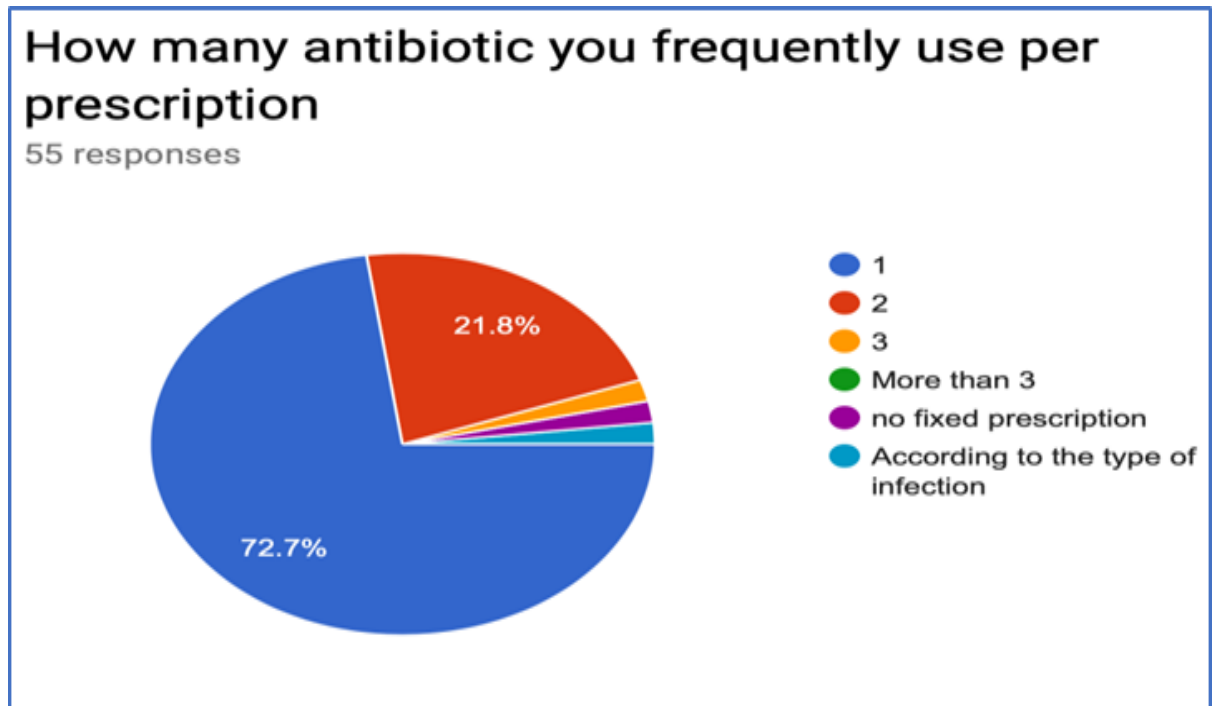
**Figure (2):** Years of Experience

Figure 2 shows 80% of participants have more than 8-30 years' experience; the idea behind looking for years of experience is to find whether years of experience have an effect on the trends or attitude towards antibiotic misuse.



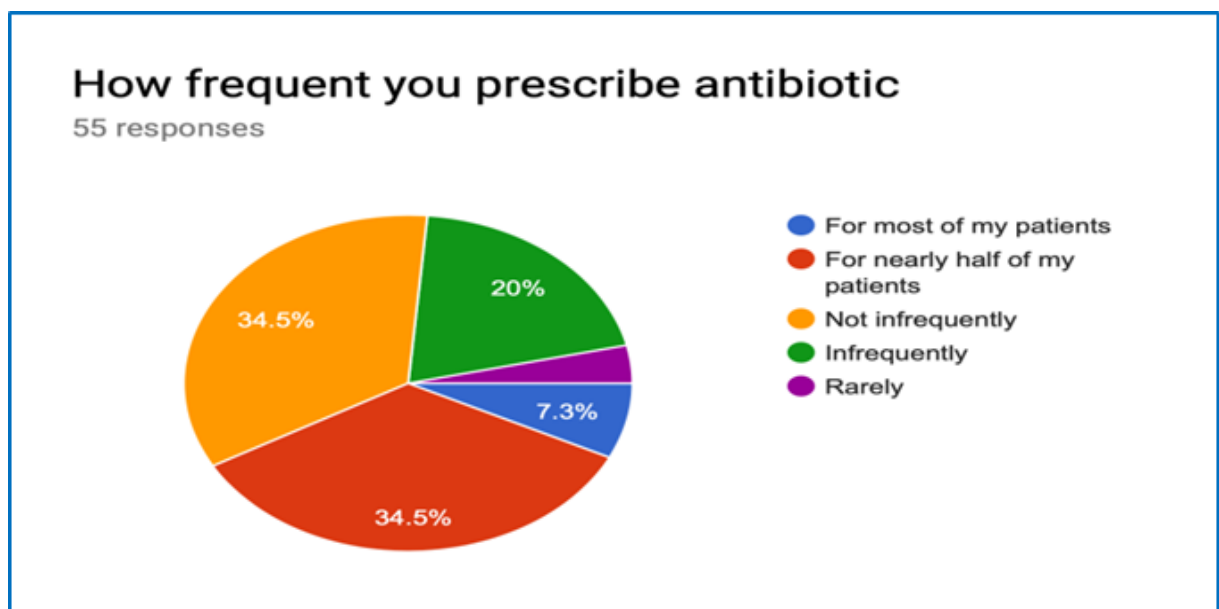
**Figure (3):** work places of participants

Figure 3 shows nearly two-thirds were graduating from Kufa College of medicine & also 2/3 have their training in Kufa centers for PG clinical studies affiliated with either Iraqi or Arabic council for medical specialization. 70% of the responders were working both in private & public sectors.



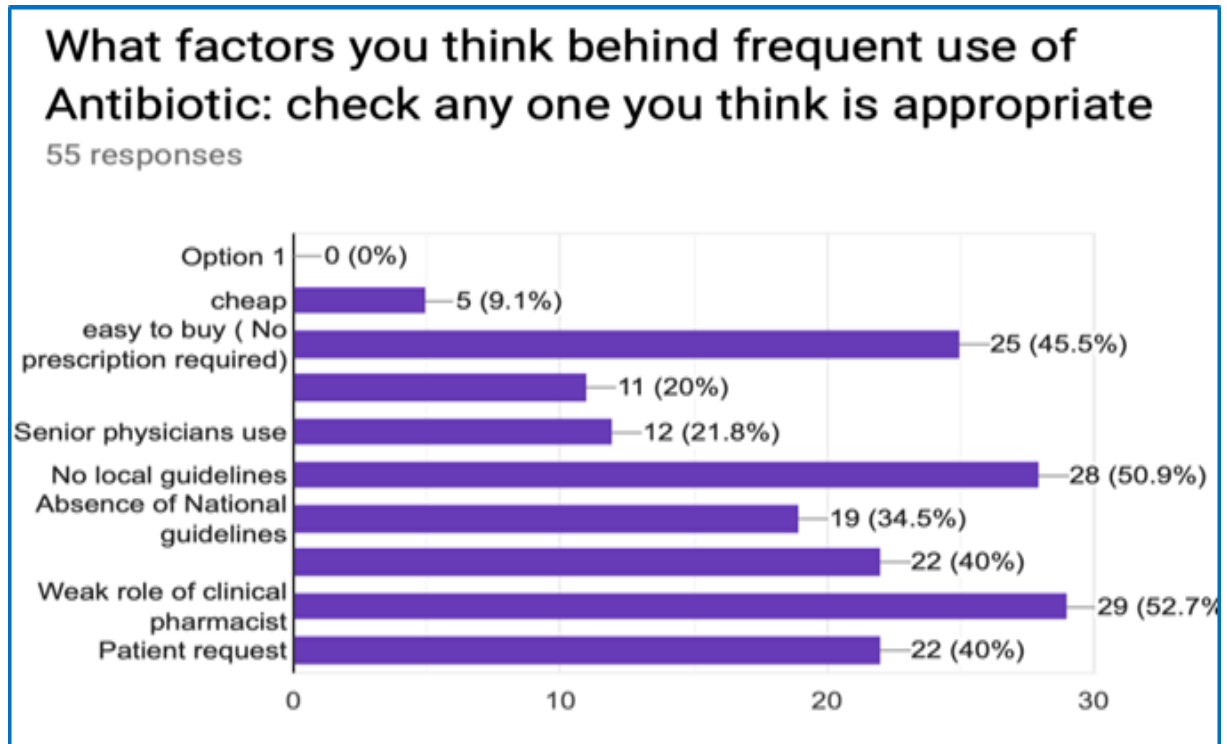
**Figure (4):** Frequency of antibiotics per prescription

Figure 4 shows more than half of them were working in secondary care while only 9% were from primary care; furthermore, more than 1/3 were working in tertiary care center which tells you to some extent the distribution of health workforce in Najaf. Although 72.7% they use only one antibiotic there is 21.8% uses two while still there is nearly 2% uses three per prescription.



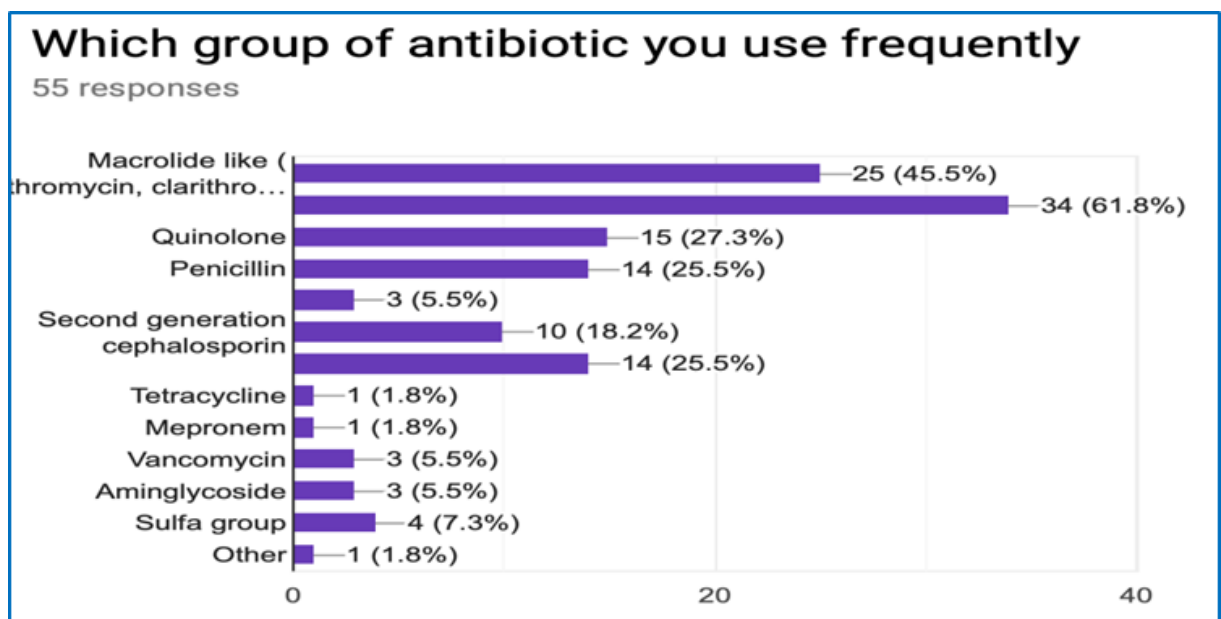
**Figure (5):** Frequency per perception

Figure 5 shows Majority of participants were from Internal medicine, surgery & OBS/GYN. Surprisingly, more than one third were prescribing antibiotics for half of their patients & more astonishing is 7% whom they prescribe antibiotics for most of their patients.



**Figure (6):** factors behinds antibiotics overuse

A figure 6 shows more than 80% of them they self-prescribe antibiotics for themselves for either fever or sore throat which was the same reasons for them to write antibiotic for others. The distribution of possible determinants of inappropriate antibiotic use illustrated in, where the weak role of pharmacist constitute the highest percentage (52.7%) of the factors behinds antibiotics misuse followed by the absence of local guideline (50.9%), the easiness of buying (45.5%).



**Figure (7):** Antibiotic groups

Figure 7 shows unfortunately; the drug most commonly prescribed was third-generation cephalosporin (Cefotaxime) 61.8%, followed by azithromycin (45.5%). Nearly one-quarter of the responders they base their antibiotic on culture & sensitivity while the other seemingly prescribes it empirically, rash was among the common side effects seen by the participants, although anaphylactic shock is seen rarely but since it carries a grave fate it should be emphasized through different media to physicians to early recognize and prevent it. Interestingly 15% of the participants they use injectable form of antibiotic.

**Figure (8):** prophylactic antibiotic prescription

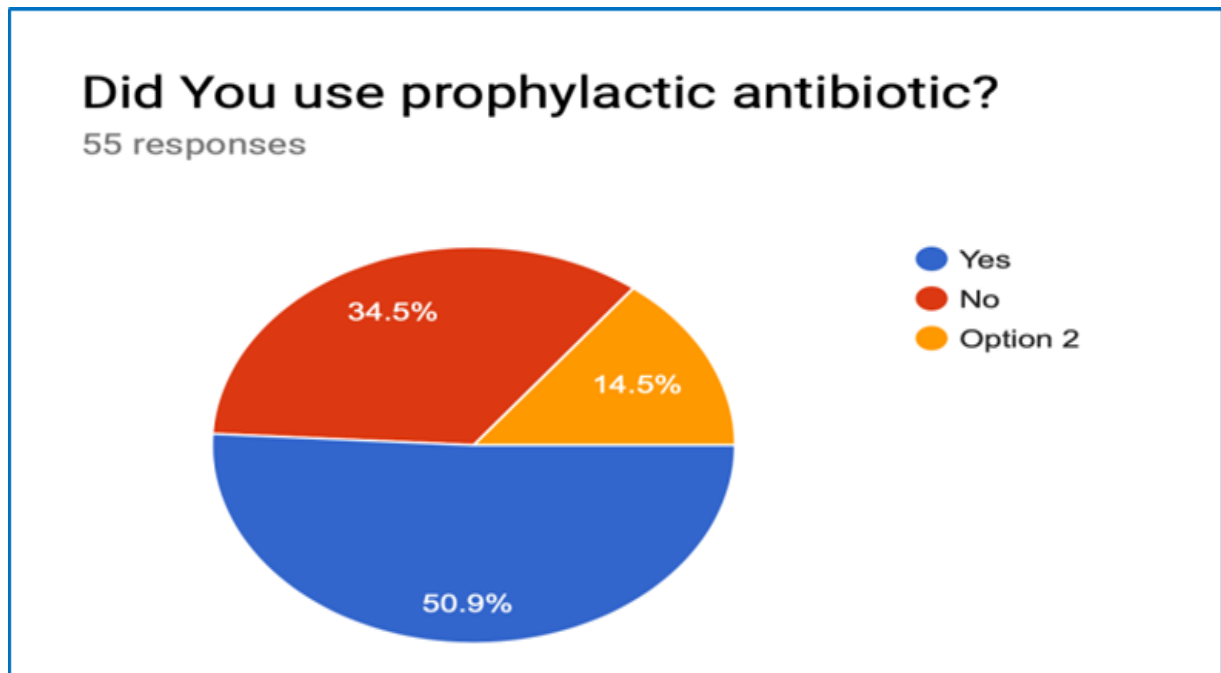


Figure 8 shows near 80% of the sample choose the item that there is no any workplace policy to limit the empirical use of antibiotics. Regarding the use of prophylactic antibiotics, more than half they were using it as prophylactic.

## DISCUSSION

Not surprisingly, the majority of antibiotics whom prescribed were with the overall trend of misuse of antibiotics in Iraq. In this study, the majority of the participants had prescribed antibiotics for their patients, and this was higher than what has been documented in China which was (83.4%)<sup>(6)</sup> However, the mindfulness of the rules on recommendations for antibiotic prescription was generally not taken into consideration. Majority participants had prescribed one antibiotic, 21.7% prescribed two antibiotics and few of them prescribed three antibiotics per patient. This could be attributed to the absence of antibiotics' prescription policy.

Surprisingly, more than one third were prescribing antibiotics for half of their patients and more astonishing is few percentage of physicians prescribe antibiotic for all of their patients. Misuse use of antibiotics had been reported in many countries like Canada (84%) China (71%), Italy (67%), Qatari (45 %), the United States of America (42%), and Norwegian (11%)<sup>(9, 10, and 13)</sup>, the physician must be aware that the empirical use of antibiotics should be based on regularly updated data. In the current survey three-quarters of the responders prescribes antibiotic empirically, while only one quarter prescribe based on culture and sensitivity. Indeed the current finding consistent with what a study reported that only 32% always prescribe based on culture and sensitivity<sup>(14)</sup>. This seems that our physician prescribed



antibiotics inappropriately, and indiscriminately, so they need training on antibiotics and antibiotic stewardship in order to enhance their knowledge and attitude.

Nearly 61.8 % of physician had prescribed third-generation cephalosporin. (Cefotaxime) being the most frequently prescribed antibiotics.

The highest antibiotics prescription was recorded in internal medicine, followed by surgery and then OBS/GYN. This results not agreed with a study by Shaikhan *et al.* 2018, who showed that the highest antibiotics prescriptions was done by general practice physicians (52.7%; 50% inappropriate) while (18.6%; 36% inappropriate) by pediatricians and (14.1% of; 44% inappropriate) by internal medicine physicians. A number of other not ideal behaviors<sup>(15)</sup>, For instance, we have recognized several other behaviors that are not optimal. For example, about 50% of physicians who participated in this study use antibiotics as prophylactic while the guidelines encourage reducing antibiotic overuse.

Some studies concentrated on self-prescription since patients who had previously experienced similar symptoms and had excellent experience with certain antibiotics are more likely to self-medicate. The finding of current survey revealed that more than 80% of participants they self-prescribe antibiotics for themselves. This result of present study highest than reported in Saudi Arabia (65.4%)<sup>(16)</sup> and confirm other studies that documented high proportion among educated subjects in other countries<sup>(17, 18)</sup>. The reasons behind misuse of antibiotic were easy to buy i.e. no prescription is required in addition to the absence of local & national guidelines, weak clinical governance & weak role of clinical pharmacist. At the end some they think that patient is requesting antibiotic as reason behind misuse.

In fact, changing the present behavioral and cultural traditions takes time and requires government health campaigns to make the population aware of the issues of self-medication and the unreasonable use of antibiotics. More than 50% of participants keep antibiotics at home. 41.8% they state they were not receiving any educational course in antibiotic furthermore many of them they were unaware of the term antibiotic stewardship. Although 58% agree that they received feedback about their usage of antibiotic, there is more than 40% of who received no feedback highlighting the importance of creating a culture of feedback inside our health institutes to improve the quality of health care.

## CONCLUSION

The study concluded that antibiotics have been prescribed inappropriately, and indiscriminately. Since, there is no policy to limit the empirical use of antibiotics. Also, findings revealed that there were no local or national guidelines for optimal antibiotics use. In addition, patients were able to buy antibiotics easily without any workplace policy. Also, pharmacists sell antibiotic without prescription so, pharmacists should have more awareness on the consequences of improper antibiotic dispensing.

## RECOMMENDATION

There is a need to set national guidelines for antibiotics prescribing.

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