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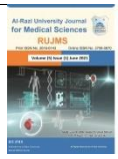

The Patients Misuse of Antibiotics and Perception of Antibiotic Resistance Sana'a City-Yemen

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Abstract:

Background of the study: Misuse of antibiotic in both healthcare setting and the community through poor prescribing practices and consumer behaviour have contributed enormously to the acquired antibiotic resistance (ABR) which presents a significant threat to public health globally in the 21st century. **Objective:** To assess the antibiotics misuse and perception of resistance among patients in different health care facilities in Sana'a City. **Methods**: A descriptive cross-sectional study of 384 adult patient's public hospitals in Sana'a City, between February and June 2021 was used. A multistage cluster random sampling was used; Five districts were selected randomly and the public, private hospitals. The sample was approached a questionnaire (face–to–face interview), The sample responded to size was determined using Epi info. The instrument is a questionnaire for patients. The data was analyzed using (SPSS) program version 26.0. Frequencies, T-test, one-way analysis of variance (ANOVA), binary logistic and ordinal logistic regression were used. Informed written consent was obtained from all participants in the study. **Results:** Only 4.4% of patients have good knowledge of antibiotics, 40% had not heard about antibiotic resistance, two-thirds of patients do not consult a physician before taking antibiotics, 72% did not complete the antibiotic course and 67% of patients taking antibiotics within the past six months. **Conclusion:** Patient's showed inadequate knowledge and perception towards the ant antibiotics and their resistance. They have poor practice about using antibiotics.

Keywords: Antibiotics, Misuse, Knowledge, Perception, Antibiotic resistance.

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Introduction

Background Over the last 5 decades, Antibiotics are one of the most commonly purchased drugs that have played an elemental role in the control and management of infectious diseases. The clinical use of these medicines whether for preventive or curable aim has improved patient-

related outcomes and quality of life. Today, the emergence of pathogenic bacteria that have become resistant to antibiotics, and their spread in the human population, is a growing problem worldwide presenting a significant threat to public health in the twenty-first century, particularly in the developing countries [25, 33].

Poor knowledge and misconceptions about antibiotic use and conflicting views on infectious diseases are known to exacerbate the development of antibiotic-resistant bacterial strains [36].

The plan calls on WHO to assess public awareness and understanding of the problem and develop and implement global communication programmes and campaigns to improve awareness and understanding. WHO is coordinating a global campaign to raise awareness of antibiotic resistance and encourage best practices among the public, policymakers, health and agriculture professionals to avoid further emergence, as well as poor infection prevention and control. Steps can be taken at all levels of society to reduce the impact and limit the spread of resistance. The general public can help by taking actions such as preventing infections to avoid the need for antibiotics, only using antibiotics when prescribed by a certified health professional, always taking the full prescription, never using left-over antibiotics and never sharing antibiotics with others [35].

The misuse of antibiotics is the single most important factor leading to antibiotic resistance around the world. Antibiotics are among the most commonly prescribed drugs used in human medicine. However, up to (50%) of all the antibiotics prescribed for people are not needed or are not optimally effective as prescribed [23].

In Yemen, patients visit a community pharmacy to purchase a pharmaceutical product much like they would at a supermarket. Also, like most other developing countries, having a valid prescription is not always enforced for receiving prescription-only drugs. With the exception of narcotics and major tranquilizers, patients can buy any medication, including antibiotics, without a prescription and misuse.

Aim of the study

To assessment the antibiotics misuse and perception of resistance among patients in different health care facilities in Sanaa city.

Subjects and Methods

Study Design A descriptive, cross-sectional study was conducted using structure questionnaire in Sana'a City –Yemen to assess antibiotic misuse and resistance among patients. The study was done between February 2021 and June 2021.

Study Setting Public and private hospitals in Sana'a City, the capital of Yemen.

Sample Size of Patients

Data were obtained from Ministry of Planning and International Cooperation National. [Population Council-Population Projection of Sana'a City- Five Year in Period (2005-2025)-By Five Years Age Groups for both sexes.

- Population size >18 year = 1.618.865
- Confidence interval = 95%
- Expected frequency = 50 %
- Marginal Error = 5%

The final sample size was 384 Yemeni patients

Data Collection Tool.

Patient's questionnaire: The first section included the respondents' socio-demographic characteristics such as age, gender, educational level, employment, income and residence and health insurance. Section two consisted of eight questions to provide information about the knowledge of antibiotic. The third section consisted of twelve statements about Awareness of antibiotic resistance using three-point Likert scale (True, False or - I don't know). The fourth

section included seventeen questions using five-point Likert scale (1 = never; 5 = always) was used to evaluate the patients practices towards using antibiotic

Data analysis: The data generated in this study was analyzed using the (Statistical Package for the Social Sciences) IBM (SPSS), version 26.

Descriptive statistics was employed to compute the mean and standard deviation of quantitative variables. Frequencies (numbers and proportions) was implemented to assess prevalence antibiotic misuse and resistance among patients in Sana'a City. T-test and one-way analysis of variance (ANOVA) was used for normally distributed data and use (post hoc tests) to find dimensional comparisons.

Binary logistic regression and ordinal logistic regression was used to evaluate factors associated with adequate antibiotic knowledge, awareness and good use.

The statistical significance for all the analysis was assessed using the p-value. A p-value less than 0.05 was considered significant. This analysis plan was enabling the objectives of this study to be met**.**

Ethical Considerations

Ethics approval was obtained from Ethics Review Board in the Faculty of Applied Medical Sciences Council, Al-Razi University. Informed written consent was obtained from all participants as it is found to be more accepted by them in the preliminary pilot test. The ethical committee agreed to this method after making sure that proper privacy procedures would be followed, and the study subject does not contain socially prohibited issues or untouchable topics in Yemeni society. All participants have the right to refuse or withdrawal from the study at any time.

Results

Demographic data.

The table (1) shows that most of the participants of the age groups between (18-44) got a percentage of (82.8%). Males represent (70.1%) and females represent (29. 9%), the city resident (75.5%) and village resident (24.5%).

Table1: Distribution of patients according to a demographic data.

Variables	F	%
Public	192	50.0
Private	192	50.0
Sex		
Male	269	70.1
Female	115	29.9
Age		
18 - 24	107	27.9
25 - 34	110	28.6
35 - 44	101	26.3
45 - 54	43	11.2
>55	23	6.0
Place of residence		
City	290	75.5
Village	94	24.5
Occupation		
Employee	127	33.1
Non-employee	47	12.2
Worker	66	17.2
Housewife	61	15.9
Student	83	21.6
Health insurance		
Without	339	88.3
With	45	11.7
Level of education		
Illiterate	37	9.6
Basic	46	12.0
Secondary	121	31.5
Diploma	56	14.6
Bachelor's degree and above	124	32.3
Monthly income		
< 30,000	107	27.9
(30,000-50,000)	119	31.0
(50,000-100,000)	94	24.5
> 100,000	64	16.7

Knowledge of antibiotics.

Table 2: Distribution of patients regarding knowledge towards antibiotics.

Statements (Correct answer)		Incorrect Response		Correct Response	
		F	%	F	%
1	Amoxicillin is an antibiotic (yes)	198	51.6	186	48.4
2	Augmentin is an antibiotic (yes)	217	56.5	167	43.5
3	Aspirin is an antibiotic (No)	119	31	265	69
4	Antibiotics are used for viral infections (No)	144	37.5	240	62.5
5	Antibiotics are drugs that can kill bacteria (yes)	145	37.8	239	62.2
6	Antibiotics are used to relieve fever (No)	222	57.8	162	42.2
7	Antibiotics are used to relieve pain (No)	216	56.3	168	43.8
8	Antibiotics cause diarrhea (yes)	261	68	123	32
Mean ± SD		**4.03 ±1.99**			

Shown in table (2) that most participants (69%used for viral infections?) and (Antibiotics are drugs n=265) gave correct answer for the question if thethat can kill bacteria?), while a lot of participants aspirin is an antibiotic, also (62.2% n=239) have(68%) (n=261) gave incorrect answers for the question: correct answers for the two questions (Antibiotics arethe antibiotics cause diarrhea.

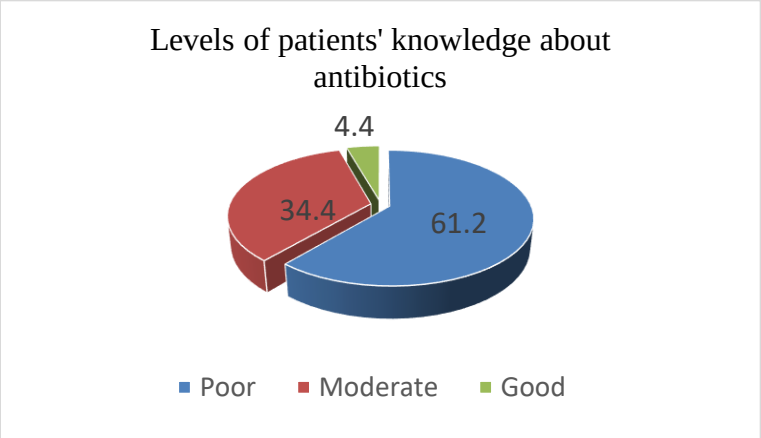

Figure 1: The proportion of patients' knowledge towards antibiotic.

Figure (1) illustrates that only (4.4%) of the patients had good knowledge towards antibiotics and (61.2%) of them had poor knowledge

Awareness towards antibiotic resistance.

Table 3: Distribution of patients regarding awareness towards antibiotics resistance.

Statements (Correct answer)		Incorrect Response		Correct Response	
		F	%	F	%
1	Antibiotic resistance appears when your body becomes antibiotic resistant and the antibiotic becomes ineffective. (False)	267	69.5	117	30.5
2	Many diseases have become increasingly resistant to antibiotic treatment. (True)	320	83.3	64	16.7
3	If bacteria are resistant to antibiotics, it will be difficult or impossible to treat infections. (True)	320	83.3	64	16.7
4	Antibiotic resistance is a problem that can affect me or my family. (True)	220	57.3	164	42.7
5	Antibiotic resistance is a problem in other countries but not here in Yemen. (False)	184	47.9	200	52.1
6	Most resistant bacteria are increasing in hospitals. (True)	265	69	119	31
7	Antibiotic resistant infections can make medical procedures such as surgeries, organ transplantations or cancer treatment more dangerous. (True)	235	61.2	149	38.8
8	Using a dose or two of an antibiotic does not contribute to develop antibiotic resistance. (False)	172	44.8	212	55.2
9	Antibiotic resistant bacteria can be transmitted from person to another person. (True)	369	96.1	15	3.9
10	The use of antibiotics for animals contributes to antibiotic resistanc in humans. (True)	340	88.5	44	11.5
11	Antibiotic resistance is a problem only in people who take antibiotics irregularly. (False)	176	45.8	208	54.2
12	Completing vaccines for children is important for reducing antibiotic resistance. (True)	234	60.9	150	39.1
	Mean ± SD	**3.69 ±1.39**			

Table (3) shows that approximately, (80%) of the patients answered incorrectly in the questions that state that diseases and bacteria resist antibiotics and it will be difficult to treat them, and that antibiotics resistant bacteria can be transmitted between humans, and the last question is asking if use of antibiotics for animals contributes to antibiotic resistance in humans. Approximately, (60-70%) of the patients answered incorrectly in the questions which state that antibiotic resistance

appears when your body becomes antibiotic resistant and the antibiotic becomes ineffective, resistant bacteria are increasing in hospitals and can cause danger to medical procedures and using vaccines is important to decrease their danger.

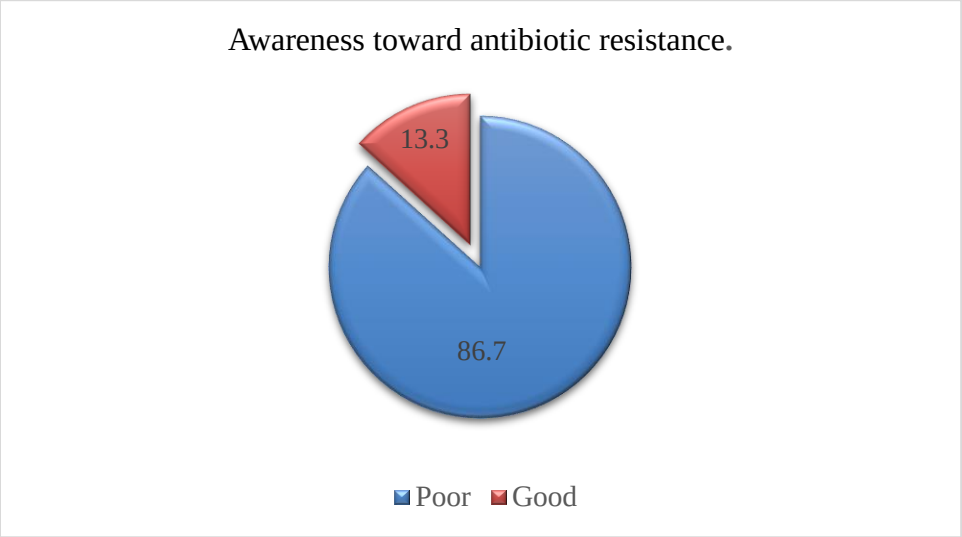

Figure 2: The proportion of patients' awareness toward antibiotic resistance.

Figure (2) shows that 86.7% of the patients had poor awareness toward antibiotic resistance and the rest (13.3%) had good awareness.

Practices towards antibiotic use

Table 4: Practices of patients statements toward the use of antibiotics.

	Statements	always	sometime	never	Mean ± SD	Level of practice
		F	F	F		
1	Usually keep a quantity of antibiotics at home for use when needed	137	144	103	1.91±0.78	Moderate
2	Keep antibiotic residues at home for future use	154	171	59	1.75±0.7	Moderate
3	Do you consider the end date of antibiotics before taking them?	112	147	125	1.96±0.78	Good
4	Usually I stop completing the antibiotic if I feel better	276	89	19	1.33±0.56	Poor
5	I'd rather go to the pharmacist to take an antibiotic than a physician.	196	111	77	1.69±0.78	Moderate
6	Take antibiotics in colds and coughs without going back to your physician	199	141	44	1.59±0.68	Moderate
7	Prefer antibiotic intake if coughing lasts more than a week	265	99	20	1.36±0.57	Poor

8	When I have a sore throat (sore throat, cough, runny nose - change of voice) I prefer to use antibiotics	208	124	52	1.59±0.71	Moderate
9	Take antibiotics for fever without going back to your physician	229	86	69	1.58±0.77	Moderate
10	Use antibiotics for viral diseases	200	140	44	1.59±0.68	Moderate
11	Use antibiotics without consulting your physician	248	109	27	1.42±0.62	Poor
12	Antibiotics can be purchased directly from pharmacies (over-the-counter)	278	100	6	1.29±0.48	Poor
13	Use antibiotics after consulting a relative, neighbor or friend	208	156	20	1.51±0.59	Moderate
14	Do you share antibiotics with someone else?	76	154	154	2.2±0.74	Good
15	Use antibiotics as scheduled in the recipe	172	187	25	2.38±0.6	Good
16	If you don't improve during the period of antibiotic use, do you change the antibiotic?	236	88	60	1.54±0.74	Moderate
17	When you buy an antibiotic, do you buy the full course?	139	164	81	2.15±0.74	Good
Mean ± SD 1.7 ± 0.21						

In table (4), it is shown that there are three questions that have good scores which are asking about sharing antibiotics, using them as scheduled, or if they are buying the full course, and the questions that stating that antibiotics can be purchased directly from pharmacies (OTC) and that patients stop taking antibiotics when they feel better before completing the course are having the poorest score.

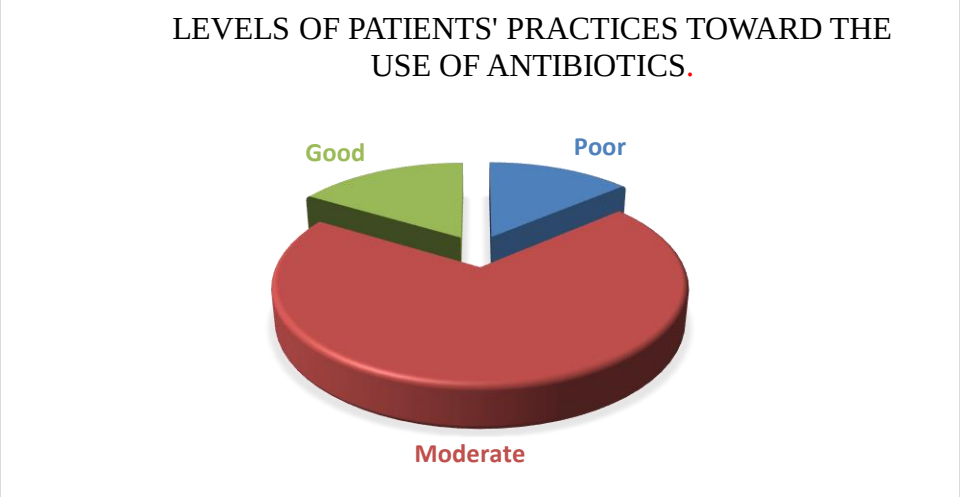

Figure 3: The proportion of patients' practices toward antibiotics.

Figure (3) illustrate that patients who practice using antibiotics moderately form (69.8%). On the other hand, (16.4%) patients had good practice and (13.8%) had poor practice towards antibiotics.

Logistic regression between patients' knowledge, awareness, and practices according to Predictors of the demographic data.

Table 5: Ordinal logistic regression model of patients' knowledge according to demographic data.

Dependent Variable	Independent Variable	Estimate	Wald	P-value	95% Confidence Interval		OR	Score
					Lower	Upper		
Knowledge	Sex	0.137	0.735	0.391	-0.176	0.45	1.146	positive
	Age	-0.114	2.775	0.096	-0.248	0.02	0.892	negative
	Place of residence	0.553	10.577	0.001	0.22	0.887	1.738	positive
	Occupation	-0.025	0.218	0.64	-0.127	0.078	0.975	negative
	Health insurance	-0.504	5.264	0.022	-0.934	-0.073	0.604	negative
	Level of education	0.475	49.533	0.00	0.343	0.607	1.608	positive
	Monthly income	-0.056	0.559	0.455	-0.202	0.091	0.945	negative

Ordinal logistic regression model was used for knowledge and practices using three variables "good", "moderate "and "poor". Also, binary logistic regression model was used for awareness by two variables "good" and "poor".

Ordinal logistic regression showed that knowledge is significantly correlation with the place of residence, health insurance and level of education (P- value<0.05). There is a significant correlation between knowledge toward antibiotic and level of education (OR = 1.608, 95% CI: 0.343–0.607, p = 0.00), the place of residence (OR = 1.738, 95% CI: 0.22–0.887, p = 0.001).

Table 6: Binary logistic regression model of patients' awareness according to demographic data.

Dependent Variable	Independent Variable	B	Wald	P- value	OR	95% Confidence Interval	
						Lower	Upper
Awareness	Sex	-0.02	0.01	0.94	0.98	0.57	1.69
	Age	0.05	0.16	0.69	1.05	0.83	1.32
	Place of residence	0.52	2.99	0.08	1.69	0.93	3.06
	Occupation	0.11	1.25	0.26	1.11	0.92	1.34
	Health insurance	-0.59	2.31	0.13	0.56	0.26	1.18
	Level of education	0.90	52.46	0.00	2.46	1.93	3.13
	Monthly income	0.08	0.29	0.59	1.08	0.82	1.41
	Constant	-3.79	14.17	0.00	0.02		

Binary logistic regression showed that awareness has high significant correlation and is influenced by the level of education (OR = 2.46, 95% CI: 1.93–3.13, p = 0.00).

Table 7: Ordinal logistic regression model of patients' practices according to demographic data.

Dependent Variable	Independent Variable	Estimate	Wald	P-value	95% Confidence Interval		OR	Score
					Lower	Upper		
Practices	Sex	0.163	1.198	0.274	-0.129	0.454	1.18	positive
	Age	-0.01	0.025	0.874	-0.13	0.11	0.99	negative
	Place of residence	-0.094	0.358	0.55	-0.4	0.213	0.911	negative
	Occupation	0.029	0.332	0.564	-0.069	0.127	1.03	positive
	Health insurance	0.178	0.807	0.369	-0.21	0.565	1.194	positive
	Level of education	0.252	17.804	0.00	0.135	0.37	1.29	positive
	Monthly income	0.047	0.428	0.513	-0.093	0.186	1.05	positive

Ordinal logistic regression showed that practices have high significant correlation and is influenced by the level of education (OR = 1.29, 95% CI: 0.135–0.37, p = 0.00).

Discussion

knowledge towards antibiotics

The current study revealed many gaps in the knowledge about antibiotics, Less than (4.4%) of patients could be considered to have good knowledge, However the level of the patients in the current study were less than results that found by [1] among Saudi patients which estimated the percentage of patients who had good knowledge (24.2%) and (55.2%) of the patients had a moderate level, also (54.9%) good knowledge in Palestine [12] and (53%) in South Africa [28].

More than two-thirds of patients answered that the aspirin is not an antibiotic; However, these results are compared by those reported [31] which were

(32.2%) in Bhutan, (56.3%) in Palestine [12] and (35.4%) in Malaysia [30]. These results indicate that the patient's knowledge of aspirin is that it is frequently used to relieve pain, fever and used commonly for prevention of heart diseases.

The findings of the current study showed that (62.5%) of patients answered that the antibiotics do not kill viruses. This result is higher than Malaysia (13.5%) [22], Lebanon (26.5%) [19], (35%) [38], Saudi Arabia (39.5%) [3] and Mali (39.9%) [11] but lower than reported from Sweden (73.2%) [9].

The results of the current study revealed that (73%) of the illiterate answered correctly "Antibiotics are not used for viral infections", and this indicates a good knowledge towards using antibiotics, especially with the pandemic Covid-19 through various media. However, most patients in Nepal answered correctly (94.1%) that antibiotics are useful for killing bacteria [21] which is more than the result of the current study (62. 2%).The knowledge about the side effects of antibiotics on causing diarrhea was believed by (68%) of patients not knowing diarrhea as one of the side effects of antibiotics. Similarly, this percentage is consistent with the study in Bhutan (68%) [31] and Nepal (69%) [21].

Awareness towards antibiotic resistance.

This study presented a modified WHO questionnaire on awareness of antibiotic resistance. In general, the results showed (86.7%) of the patients have poor awareness toward antibiotic resistance. The age group between 25 and 34 years is the most aware compared to (>55) years old patients. Also males with the highest level of education are more aware of antibiotic resistance. also a significant correlation was found between awareness toward antibiotic resistance and level of education (OR = 2.46, 95% CI: 1.93–3.13, p = 0.00). This odd ratio is a clear indication of the importance of education to improve the level of awareness.

The result in this study showed that (60%) of patients hear about resistance of antibiotic. In congruence with other studies in Mexico stated that they are familiar with the term (89%), as do those in Indonesia (84%), (70%) in Jordan [37], (60.3%) in Saudi Arabia [8] and the Russian Federation (82%) [35]. In contrast, they are fewer than in Barbados (43%), Nigeria (38%), Egypt (22%) [35], and Malaysia (32.4%) [20].

The findings of the current study have showed that most patients (96.1%) answered incorrectly about the transmission of the resistant bacteria from person to another person. Similarly, the percentages in other studies ware found as follows, in Ghana (75%) [13], Indonesia (56%) and (58%) in Mexico [35].

The results in this study also showed that few patients (88.5%) answered incorrectly about the use of antibiotics for animals contributes to antibiotic resistance in humans. In contrast, it was found that patients in China, the Russian Federation, Serbia, Viet Nam, Sudan and Egypt answered correctly about that statement, at (83%), (81%), (81%), (71%), (77%) and (66%) respectively [35].

The results revealed some misconceptions and misunderstandings. It is notable that (45.8%) of patients in the current study believe that they are not at risk of an antibiotic resistant infection as long as they take their antibiotics correctly. Actually, the antibiotic resistant bacteria can spread from person to person with the potential to affect anyone, of any age, in any country. The literature review findings show considerable variation between countries (89%) in Sudan and (81%) in Nigeria believe that taking antibiotics correctly protects them from risk, compared to (27%) in Barbados [35].

Practices towards antibiotic use

The results in the current study showed that (4.9%) of patients usually complete the antibiotic course even if they feel better. On the other side, an

alarmingly large number (95.1%) who may stop their course of antibiotics as soon as they feel better. This high percentage of people who stop their antibiotic course may be a major contributor to the rapid increase in resistant bacterial infections in Yemen. On the other hand, a study showed that (51.5%) of Lebanese people and (33.3%) of Malaysia university students stop their antibiotic course after improving [19,30]. Other studies showed the following percentages in Saudi Arabia (66.5%) [3], Nigeria (63.2%), Hong Kong (58%), Taiwan (50.1%) [16] and also Yemeni and Uzbekistani teachers (44.4%), (64%) respectively [10].

According to the results of the current study, (69%) of the patients prefer antibiotic intake if coughing lasts more than a week which is higher than a study done by [12] in Palestine (54.7%) and in Lebanon [19], and South Korea [15], that found this proportion to be (43.9%) and (30.1%), respectively [2].

More than two-thirds of patients in the current study said they do not consult a physician before taking antibiotics which is higher than the study [6] in Kuwait (42%), [14] in Australia (20.2%), [32] in Rwanda (14.7%), [34] in Romania (29.7%) and [5] in Iraq (42.2%).

One hundred fifty-four of the patients (40%) in current study never share antibiotics with someone else compared to the study in Malaysia (68.6%) [30] and in Penang, Malaysia (81.9%) [22] and in Ethiopia (19.3%) [17].

The results in the current study showed that (72.4%) of patients always purchase antibiotics directly from pharmacies (over-the-counter). In the current study, the patients with less education tend to consume antibiotics from pharmacies (OTC) more frequently than those with higher education, also elder patients (who are older than 55 years) usually go to pharmacies frequently. Similarly, this percentage is consistent with the study in Yemen and Uzbekistan (78%) [10]. In contrast, this percentage is highly compared to the previous studies in Palestine (30.1%) [12], Jordan (30.0%) [29] and in Saudi Arabia (59.9%) [8]. Also in Ethiopia, Iraq and Qatar (43.1%), (45.8%) and (23%) respectively [4,7,18].

The results in the current study revealed many challenges regarding antibiotic use among the community of Yemen. More than two thirds of the sample population have used antibiotics in the past six months, which may indicate the overuse of antibiotics. More than two thirds of those obtained the antibiotics without a prescription (OTC), also the same proportion have not consulted a physician before taking antibiotics and the majority proportion have not completed the course of treatment, which clearly indicates antibiotics misuse.

The current study found that level of education, sex, monthly income, and health insurance have significant correlation with public practice towards the use of antibiotics (OR>1). These variations may be related to the difference in socio-demographic characteristics and design in each study.

Conclusion

In conclusion, the misuse of antibiotics is the most important factor leading to antibiotic resistance around the world and problems in the public health issue worldwide.

Least percentage of patients have a good awareness of antibiotic resistance and practices about using antibiotics, but only low percentage of those with adequate knowledge of antibiotics. This low percentage drives to the misuse of antibiotics in the community of Yemen. The majority of the participants prefer consulting a pharmacist rather than a physician, and they use the inappropriate and incomplete antibiotic courses.

As well as there was low awareness about resistant bacteria and the possibility of transmission from person to person or from animals to humans.

The results showed that low income patients, illiterates and old people have poor level of knowledge and awareness, and they practice misusing of antibiotics. Females are less aware compared to males. Also, the unemployed patients are less knowledgeable and more misusing to antibiotics. Patients who do not have a health insurance are more misusing to antibiotics.

Logistic regression results showed that knowledge, awareness and practices are influenced by variables like sex, monthly income, occupation and health insurance. On the other hand, the level of education variable has a significance influence on the knowledge, awareness and practices.

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إساءة استخدام المرضى للمضادات الحيوية وتصورهم لمقاومة المضادات الحيوية في مدينة صنعاء - اليمن

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الملخص:
خلفية الدراسة: ساهمت إساءة استخدام المضادات الحيوية في كل من الرعاية الصحية والمجتمع من خلال ممارسات الوصف السيئة وسلوكيات المستهلكين بشكل كبير في مقاومة المضادات الحيوية المكتسبة، والتي تمثل تهديدًا كبيرًا للصحة العامة عالميًا في القرن الحادي والعشرين. **الهدف**: تقييم إساءة استخدام المضادات الحيوية وتصور المقاومة بين المرضى في مختلف مرافق الرعاية الصحية في مدينة صنعاء. **الطرق**: استخدمت دراسة وصفية مقطعية لـ 384 مريضًا بالغًا في المستشفيات العامة في مدينة صنعاء، بين فبراير ويونيو 2021. تم استخدام أخذ عينات عنقودية عشوائية متعددة المراحل؛ حيث تم اختيار خمسة مناطق عشوائيًا والمستشفيات العامة والخاصة. تمت مواجهة العينة باستبيان (مقابلة وجه لوجه)، وتم تحديد حجم العينة باستخدام برنامج .Epi Info الأداة المستخدمة هي استبيان للمرضى. تم تحليل البيانات باستخدام برنامج SPSS الإصدار 26.0. تم استخدام الترددات، اختبارT ، تحليل التباين أحادي الاتجاه(ANOVA) ، الانحدار اللوجستي الثنائي والانحدار اللوجستي الترتيبي. تم الحصول على موافقة خطية مستنيرة من جميع المشاركين في الدراسة. **النتائج**: فقط 4.4% من المرضى لديهم معرفة جيدة بالمضادات الحيوية، 40% لم يسمعوا عن مقاومة المضادات الحيوية، ثلثا المرضى لا يستشيرون طبيبًا قبل تناول المضادات الحيوية، 72% لم يكملوا دورة المضادات الحيوية و67% من المرضى تناولوا مضادات حيوية خلال الستة أشهر الماضية. الاستنتاج: أظهر المرضى معرفة وتصور غير كافيين تجاه المضادات الحيوية ومقاومتها. لديهم ممارسات سيئة فيما يتعلق باستخدام المضادات الحيوية.

الكلمات المفتاحية: المضادات الحيوية، إساءة الاستخدام، المعرفة، التصور، مقاومة المضادات الحيوية.