

Assessment of Antibiotics Misuse among People in Erbil City

تقييم شيوخ استعمال المضادات الحيوية و تأثيراتها السلبية على الاشخاص في مدينة اربيل

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الخلاصة

خلفية البحث: تعد المضادات الحيوية واحدة من اكثر الادوية استخداما من قبل الاشخاص للقضاء على للالتهابات البكتيرية. ان استعمال المضادات الحيوية تحتاج الى دقة في الاستخدام النوعي والكمي و تحديد المدة الزمنية اللازمة لآخذ المضادات الحيوية، فهذه المضادات الحيوية تسبب مشاكل عدة للمرضى والاهم من ذلك تولد مقاومة للمضادات الحيوية و انتشار هذه المقاومة .

الهدف: ان الهدف من هذه الدراسة تقييم ظاهرة استخدام المضادات الحيوية من قبل الاشخاص بشكل عام ومعرفة مدى دقة استخدامها ومعلومات المستخدم حول المضادات الحيوية بدون استشارة الاطباء.

المنهجية: في هذه الدراسة تم اخذ 500 عينة بشكل عشوائي عن طريق اجراء مقابلات مع الاشخاص البالغين من مختلف المناطق في اربيل .

النتائج: نتائج هذه الدراسة اظهرت ان مايقارب نصف المستخدمين (52.4%) للمضادات الحيوية لم يكن لديهم اية معلومات عن الاعراض الجانبية و ان 37.8% من المشاركين في البحث كانت لديهم فكرة خاطئة عن استخدام المضادات الحيوية لعلاج الصداع. ان 65.8% من المشاركين لم يكن لديهم فكرة على ان المضادات الحيوية قد تقضي و تساعد في قتل البكتيريا المفيدة للجسم. وان 57.2% من المشاركين لم يكن لديهم اي فكرة حول ازدياد مقاومة البكتيريا للمضادات الحيوية عنده كثرة استخدامها. اظهرت هذه الدراسة ان 46% من المشاركين كانوا يستخدمون المضادات الحيوية بدون استشارة الاطباء او الصيدلة وان 46.2% منهم يستخدمونها لعلاج الانفلونزا وان 52.4% من المستخدمين يفضلون استخدام المضادات الحيوية عن شكل حبوب او الكبسولات .

الاستنتاجات: أظهرت هذه الدراسة مدى انتشار استخدام المضادات الحيوية وبشكل غير علمي ودقيق مما يسبب مشاكل عديدة واعراض جانبية لدى المستخدمين .

التوصيات: توصى هذه الدراسة على عدم صرف المضادة الحيوية من بدون استشارة الاطباء من قبل الصيدليات.

Abstract

Background: Antibiotics are only useful for treating bacterial infections. Inadequate use of antibiotics includes overuse, inappropriate type, dose, duration and/or frequency of administration had been a major problem. Antibiotic use has been identified as a major contributor to the development and spread of antibiotic resistance.

Objectives: Assessment self-medication and inappropriate of antibiotics were used among people in Erbil city. To find out the associations between the antibiotic use and knowledge related antibiotic consumption.

Methods: The study was used a cross-sectional study, which conducted on 500 randomly, selected adult residents in Erbil by using a face-to-face questionnaire.

Results: About half of the study samples (52.40%) did not know that antibiotics has adverse effect on humans body, 37.80% were agree to used antibiotic for headache treatment, 65.80% of them did not know that antibiotics kill normal flora, and 57.20% were did not know that bacteria become resistant to antibiotics. In addition, 46.00% were used antibiotics on advice of someone other than a physician or pharmacist, 46.20% of peoples were some time used antibiotics against colds and flu, 52.40% of peoples were some time used antibiotics as injection, and 57.20% of peoples were some time used antibiotic as one capsule when needed.

Conclusion: Self-medication and inappropriate use of antibiotics were problems among people in the community.

Recommendation: Strict precautions should be taken about antibiotics use and sale without prescriptions.

Keywords: Antimicrobials, antibiotic resistance, self-medication

INTRODUCTION

Antibiotics are among the most common drugs prescribed. The spread of antibiotic resistance is a major threat to public health^(1, 2). A direct relationship between excessive antibiotic use and increasing microbial resistance had been documented also influenced by how antibiotics are used by the patient^(3,4). Moreover, levels of bacterial resistance occur in proportion to the volume of community antibiotic use^(5, 6). Many commensal and pathogenic bacteria have developed resistance to antibiotics⁽⁷⁾. Antibiotics should be used with care as antibiotic resistance is correlated with antibiotic use⁽⁸⁾. The emergence of antibiotic resistance has been recognised as an important health problem because discovery of new antibiotics is no longer keeping pace with the spread of highly resistant bacteria⁽⁹⁾. The resistance to any antibiotic is promoted by excessive prescribing of broad-spectrum antibiotics, because this overprescribing promotes resistance to agents that are commonly used to complicated infections^(10, 11).

The increasing use, overused and abused of antibiotics to treat illness is the greatest factor causing spread of drug resistance. Antibiotics are misused because many patients do not take antibiotics according to prescription instructions⁽¹²⁾. Misuse of antibiotic therapy, including failure to complete therapy, skipping of doses, or reuse of leftover antibiotics, can potentially exposed patients to suboptimal doses of antibiotic therapy^(13- 15). Antibiotics do not have any effect on viral infections. The treatment for a cold is normally getting rest⁽¹⁶⁾. Misuse of antibiotic therapy has ramifications on treatment failures in patients with antibiotic resistant infections, wasted medication, hospitalisation time, and increased return visits to the physician^(13, 14).

Self-medication with antibiotics may increase the risk of inappropriate use and the selection of resistant bacteria⁽¹⁷⁾. Unnecessary prescription of antibiotics is the main driver for the development of antibiotic resistance^(18, 19). Physicians may overprescribe antibiotics because they want to prevent potential infections or simply because they believe that is what patients want⁽²⁰⁾. The consequences of antibiotics overuse are striking, every year; millions of people are directly exposed to the side effects of antibiotics⁽²¹⁾. Increased treatment options, more variable benefits and risks, higher financial costs, and the growth of consumerism appear to be central contributors to a growing role for patients in the decision making process⁽²²⁾. In low-income countries showed that the cost of medical consultation and low attitudes and behaviour of health personnel might reinforce use of self-medication with antibiotics⁽²³⁾. The widespread consumption of inappropriate and inadequate doses of antibiotics in developing countries is of a major concern of which resistance to antibiotics has been linked to level of consumption⁽⁵⁾. Many countries increasingly implement actions to control antibiotic resistance through rational use⁽²⁴⁾. The objective of the presented study was to evaluate the awareness toward antibiotic usage among the peoples.

METHODS

The cross-sectional study conducted on people in Erbil city. Home visits were conducted a randomly selected households in Erbil quarter from June 2012 to July 2013. Only one member of the household was selected randomly by alphabetically of the names who those above 18 years and able to understand and answer the questionnaire. Participants were given information by completed the questionnaire face to face. Informed consent was obtained from 500 participants in the study.

Setting of study: the present study was conducted Erbil city.

Instruments composition: Study tool was prepared through literatures review, which involved two parts; Part I: demographic characteristics were include age, gender, marital status, and level of education. Part II: this part composed of the questionnaire toward awareness (11 items) and attitudes (10 items) of participants about antibiotic use.

Validity of questionnaire: Five experts from different related specialties were evaluated the questionnaires.

Statistical methods: Data was analyzed using SPSS 19.0 software. Qualitative variables were compared using the Chi-square (X^2). All p-values with $p < 0.05$ were considered significant.

RESULTS

Table 1: Demographic characteristics of 500 household members

Characteristics		n	%
Age Group	18-24	254	50.8
	25-31	98	19.6
	32-38	55	11
	39-45	38	7.6
	46-52	24	4.8
	53-59	13	2.6
	60	18	3.6
Gender	Male	341	68.2
	Female	159	31.8
Marital status	Married	221	44.2
	Single	279	55.8
Level of education	Illiterate	38	7.6
	Primary	40	8
	Intermediate	298	59.6
	Institute	47	9.4
	College	68	13.6
	Post-graduate	9	1.8

This table shows that the demographic characteristic of 500 population-studied shows that the majority (50.8%) of ages were 18 to 24 years of which males were 68.2%, while females were 31.8% and the married status were 44.2%. According to the educational status, high percentage 59.6% of the population was in the level 7-12 (Table 1).

Table 2: Association between antibiotic use and demographic characteristics

Characteristics		Antibiotics used in the past												P-value
		1 weeks		2 weeks		3 weeks		4 weeks		≥ 5 weeks		Total		
		n	%	n	%	n	%	n	%	n	%	n	%	
Age Group	18-24	38	14.96	28	11.02	32	12.60	61	24.02	95	37.40	254	50.80	0.48 N.S
	25-31	22	22.45	8	8.16	6	6.12	29	29.59	33	33.67	98	19.60	
	32-38	15	27.27	5	9.09	4	7.27	13	23.64	18	32.73	55	11.00	
	39-45	11	28.95	6	15.79	4	10.53	8	21.05	9	23.68	38	7.60	
	46-52	5	20.83	3	12.50	1	4.17	5	20.83	10	41.67	24	4.80	
	53-59	2	15.38	1	7.69	1	7.69	5	38.46	4	30.77	13	2.60	
	≥60	5	27.78	4	22.22	1	5.56	1	5.56	7	38.89	18	3.60	
Gender	Male	62	18.18	31	9.09	37	10.85	90	26.39	121	35.48	341	68.20	0.11 N.S.
	Female	36	22.64	24	15.09	12	7.55	32	20.13	55	34.59	159	31.80	
Marital status	Married	52	23.53	24	10.86	19	8.60	47	21.27	79	35.75	221	44.20	0.25 N.S
	Single	46	16.49	31	11.11	30	10.75	75	26.88	97	34.77	279	55.80	
Level of education	Illiterate	8	21.05	4	10.53	4	10.53	5	13.16	17	44.74	38	7.60	0.02 Sig.
	Primary	5	12.50	7	17.50	0	0.00	17	42.50	11	27.50	40	8.00	
	Intermediate	57	19.13	25	8.39	39	13.09	64	21.48	113	37.92	298	59.60	
	Institute	12	25.53	5	10.64	2	4.26	12	25.53	16	34.04	47	9.40	
	College	14	20.59	12	17.65	4	5.88	20	29.41	18	26.47	68	13.60	
	Post-graduate	2	2.22	2	2.22	0	0.00	4	4.44	1	1.11	9	1.80	
Total		98	19.60	55	11.00	49	9.80	122	24.40	176	35.20	500	100	

Sig.= Significant, N.S= Not significant

Table 2 shows that there is high significant ($P = 0.02$) relation between antibiotic taken and level of education, while there are no significant with age ($P = 0.48$), gender ($P = 0.11$), and marital status ($P = 0.25$) (Table 2).

Table 3: Association between awareness of the study sample toward antibiotic use and age groups

Statements		18-24 years	25-31 years	32-38 years	39-45 years	46-52 years	53-59 years	≥60 years	Total		p-value
									n	%	
Used antibiotics on advice of someone other than a physician or pharmacist	Never	52.36	42.86	43.64	26.32	37.50	38.46	38.89	230	46.00	0.99 N.S
	Some time	43.31	50.00	50.91	57.90	50.00	46.15	50.00	236	47.20	
	Every time	4.33	7.14	5.45	15.79	12.50	15.38	11.11	34	6.80	
Selection of antibiotics depending on the price	Never	27.56	33.67	30.91	31.58	37.50	38.46	55.56	156	31.20	0.81 N.S
	Some time	50.39	45.92	52.73	42.11	33.33	38.46	38.89	238	47.60	
	Every time	22.05	20.41	16.36	26.32	29.17	23.08	5.56	106	21.20	
Selection of antibiotics according to their colour and shape	Never	50.00	48.98	56.36	52.63	54.17	46.15	50.00	254	50.80	0.93 N.S
	Some time	36.61	36.73	30.91	23.68	29.17	38.46	38.89	174	34.80	
	Every time	13.39	14.29	12.73	23.68	16.67	15.38	11.11	72	14.40	
Used old prescription of antibiotics	Never	61.02	66.33	58.18	57.90	66.67	30.77	38.89	301	60.20	0.15 N.S
	Some time	30.31	26.53	38.18	28.95	29.17	46.15	55.56	158	31.60	
	Every time	8.66	7.14	3.64	13.16	4.17	23.08	5.56	41	8.20	
Stop taking the antibiotic when feeling better	Never	46.46	58.16	49.09	55.26	70.83	23.08	66.67	255	51.00	0.04 Sig.
	Some time	40.94	24.49	40.00	31.58	20.83	69.23	27.78	181	36.20	
	Every time	12.60	17.35	10.91	13.16	8.33	7.69	5.56	64	12.80	
Change the antibiotic if do not feel better immediately	Never	32.28	28.57	25.45	18.42	16.67	23.08	33.33	144	28.80	0.62 N.S
	Some time	40.55	38.78	43.64	44.74	54.17	69.23	22.22	208	41.60	
	Every time	27.17	32.65	30.91	36.84	29.17	7.69	44.44	148	29.60	
Used antibiotics against colds and flu	Never	29.53	27.55	14.55	21.05	29.17	38.46	16.67	133	26.60	0.59 N.S
	Some time	42.91	43.88	60.00	52.63	41.67	46.15	55.56	231	46.20	
	Every time	27.56	28.57	25.45	26.32	29.17	15.38	27.78	136	27.20	
Used antibiotics as injection	Never	33.46	36.73	34.55	47.37	37.50	46.15	33.33	179	35.80	0.76 N.S
	Some time	54.72	52.04	50.91	36.84	50.00	46.15	66.67	262	52.40	
	Every time	11.81	11.22	14.55	15.79	12.50	7.69	0.00	59	11.80	
Antibiotic used as one capsule when needed	Never	22.44	22.45	21.82	39.47	29.17	23.08	22.22	120	24.00	0.35 N.S
	Some time	59.45	63.27	58.18	34.21	45.83	61.54	50.00	286	57.20	
	Every time	18.11	14.29	20.00	26.32	25.00	15.38	27.78	94	18.80	
Used overdose of antibiotics	Never	72.05	75.51	83.64	57.90	66.67	69.23	61.11	361	72.20	0.18 N.S
	Some time	22.83	18.37	14.55	28.95	29.17	30.77	38.89	113	22.60	
	Every time	5.12	6.12	1.82	13.16	4.17	0.00	0.00	26	5.20	
Complete the course of prescribing antibiotics	Never	23.23	15.31	23.64	23.68	16.67	38.46	16.67	108	21.60	0.55 N.S
	Some time	44.88	50.00	43.64	39.47	33.33	30.77	33.33	220	44.00	
	Every time	31.89	34.69	32.73	36.84	50.00	30.77	50.00	172	34.40	

Sig.= Significant, N.S= Not significant

Table 3 show that there are significant differences between age group and stop taking of the antibiotic when feeling better ($P = 0.04$). However, there are no statistical differences with others statements under table 3.

Table 4: Attitudes of study sample regarding antibiotic use and their age groups

Statements		18-24 years	25-31 years	32-38 years	39-45 years	46-52 years	53-59 years	≥60 years	Total		p-value
		n	%	n	%	n	%	n	%	n	
Taking antibiotics has adverse effect on your body	Total agree	22.05	23.47	20.00	28.95	8.33	23.08	11.11	108	21.60	0.77 N.S
	Total disagree	26.77	24.49	23.64	28.95	33.33	23.08	16.67	130	26.00	
	Don't know	51.18	52.04	56.36	42.11	58.33	53.85	72.22	262	52.40	
Unnecessary use of antibiotics has adverse effect on your body	Total agree	30.71	32.65	36.36	47.37	16.67	30.77	16.67	159	31.80	0.12 N.S
	Total disagree	31.10	27.55	27.27	23.68	33.33	15.38	11.11	142	28.40	
	Don't know	38.19	39.80	36.36	28.95	50.00	53.85	72.22	199	39.80	
Complete the course of prescribing antibiotics and avoid cutting the course of treatment	Total agree	42.13	32.65	38.18	44.74	33.33	46.15	22.22	195	39.00	0.02 Sig.
	Total disagree	25.20	40.82	32.73	39.47	50.00	46.15	55.56	165	33.00	
	Don't know	32.68	26.53	29.09	15.79	16.67	7.69	22.22	140	28.00	
Antibiotics kill normal flora	Total agree	21.65	27.55	20.00	15.79	16.67	7.69	5.56	105	21.00	0.22 N.S
	Total disagree	10.24	12.24	20.00	21.05	8.33	23.08	22.22	66	13.20	
	Don't know	68.11	60.20	60.00	63.16	75.00	69.23	72.22	329	65.80	
Antibiotic is a fever lowering agent	Total agree	24.41	26.53	18.18	34.21	29.17	23.08	16.67	124	24.80	0.21 N.S
	Total disagree	32.68	36.73	36.36	23.68	54.17	53.85	50.00	177	35.40	
	Don't know	42.91	36.73	45.45	42.11	16.67	23.08	33.33	199	39.80	
Antibiotics effective against colds and flu	Total agree	40.55	35.71	36.36	34.21	54.17	38.46	66.67	201	40.20	0.01 Sig.
	Total disagree	12.99	28.57	21.82	31.58	20.83	38.46	11.11	97	19.40	
	Don't know	46.46	35.71	41.82	34.21	25.00	23.08	22.22	202	40.40	
Antibiotic used for headache treatment	Total agree	32.28	45.92	30.91	39.47	54.17	15.38	83.33	189	37.80	< 0.01 Sig.
	Total disagree	31.50	21.43	36.36	42.11	25.00	46.15	11.11	151	30.20	
	Don't know	36.22	32.65	32.73	18.42	20.83	38.46	5.56	160	32.00	
All antibiotics are similar in the same activity and way of use	Total agree	11.81	18.37	9.09	10.53	0.00	15.38	16.67	62	12.40	0.04 Sig.
	Total disagree	29.13	33.67	41.82	52.63	54.17	46.15	38.89	176	35.20	
	Don't know	59.06	47.96	49.09	36.84	45.83	38.46	44.44	262	52.40	
Used overdose of antibiotics	Total agree	11.02	11.22	5.45	15.79	16.67	0.00	5.56	53	10.60	0.42 N.S
	Total disagree	63.39	67.35	72.73	73.68	70.83	61.54	72.22	333	66.60	
	Don't know	25.59	21.43	21.82	10.53	12.50	38.46	22.22	114	22.80	
Bacteria become resistant to antibiotics	Total agree	29.13	34.69	27.27	31.58	33.33	23.08	11.11	148	29.60	0.17 N.S
	Total disagree	11.81	17.35	14.55	21.05	4.17	15.38	0.00	66	13.20	
	Don't know	59.06	47.96	58.18	47.37	62.50	61.54	88.89	286	57.20	

Sig.= Significant, N.S= Not significant

Table 4 shows that positive relation were found between age group with following statements; complete the course of prescribing antibiotics and avoid cutting the course of treatment (P = 0.02); antibiotic effective against cold and flu (P = 0.01); Antibiotic used for headache treatment (P < 0.01), and; all antibiotic are similar in same activity and way of use (P = 0.04) (Table 4).

Table 5: Association between awareness of the study samples toward antibiotic use among gender respondent

Statements		Male	Female	Total		P-value
				n	%	
Used antibiotics on advice of someone other than a physician or pharmacist	Never	49.56	38.36	230	46.00	< 0.01 Sig.
	Some time	46.63	48.43	236	47.20	
	Every time	3.81	13.21	34	6.80	
Selection of antibiotics depending on the price	Never	23.17	48.43	156	31.20	< 0.01 Sig.
	Some time	52.79	36.48	238	47.60	
	Every time	24.05	15.09	106	21.20	
Selection of antibiotics according to their colour and shape	Never	46.33	60.38	254	50.80	0.01 Sig.
	Some time	39.30	25.16	174	34.80	
	Every time	14.37	14.47	72	14.40	
Used old prescription of antibiotics	Never	60.41	59.75	301	60.20	0.78 N.S
	Some time	31.96	30.82	158	31.60	
	Every time	7.62	9.43	41	8.20	
Stop taking the antibiotic when feeling better	Never	48.68	55.97	255	51.00	0.27 N.S
	Some time	38.42	31.45	181	36.20	
	Every time	12.90	12.58	64	12.80	
Change the antibiotic if do not feel better immediately	Never	29.33	27.67	144	28.80	0.84 N.S
	Some time	40.76	43.40	208	41.60	
	Every time	29.91	28.93	148	29.60	
Used antibiotics against colds and flu	Never	23.75	32.70	133	26.60	0.08 N.S
	Some time	46.92	44.65	231	46.20	
	Every time	29.33	22.64	136	27.20	
Used antibiotics as injection	Never	31.96	44.03	179	35.80	0.03 Sig.
	Some time	55.43	45.91	262	52.40	
	Every time	12.61	10.06	59	11.80	
Antibiotic used as one capsule when needed	Never	19.65	33.33	120	24.00	< 0.01 Sig.
	Some time	63.05	44.65	286	57.20	
	Every time	17.30	22.01	94	18.80	
Used overdose of antibiotics	Never	70.38	76.10	361	72.20	0.28 N.S
	Some time	24.63	18.24	113	22.60	
	Every time	4.99	5.66	26	5.20	
Complete the course of prescribing antibiotics	Never	21.11	22.64	108	21.60	0.03 Sig.
	Some time	47.80	35.85	220	44.00	
	Every time	31.09	41.51	172	34.40	

Sig.= Significant, N.S= Not significant

Table 5 shows that there were significant relations were found between gender and most of statements, while no significant relations were found in statements; Used old prescription of antibiotics (P =0.78); stop taking antibiotic when feeling better (P=0.27); Change the antibiotic if do not feel better immediately (P = 0.843), and; used overdose of antibiotics (P= 0.28) (Table 5).

Table 6: Attitudes of the study sample awareness toward antibiotic use among gender

Statements		Male	Female	Total		P-value
				n	%	
Taking antibiotics has adverse effect on your body	Total agree	23.46	17.61	108	21.60	0.11 N.S
	Total disagree	27.27	23.27	130	26.00	
	Don't know	49.27	59.12	262	52.40	
Unnecessary use of antibiotics has adverse effect on your body	Total agree	25.81	44.65	159	31.80	<0.01 Sig.
	Total disagree	33.43	17.61	142	28.40	
	Don't know	40.76	37.74	199	39.80	
Complete the course of prescribing antibiotics and avoid cutting the course of treatment	Total agree	40.18	36.48	195	39.00	<0.01 Sig.
	Total disagree	27.86	44.03	165	33.00	
	Don't know	31.96	19.50	140	28.00	
Antibiotics kill normal flora	Total agree	22.29	18.24	105	21.00	0.57 N.S
	Total disagree	13.20	13.21	66	13.20	
	Don't know	64.52	68.55	329	65.80	
Antibiotic is a fever lowering agent	Total agree	21.70	31.45	124	24.80	<0.01 Sig.
	Total disagree	33.14	40.25	177	35.40	
	Don't know	45.16	28.30	199	39.80	
Antibiotics effective against colds and flu	Total agree	35.48	50.31	201	40.20	< 0.01 Sig.
	Total disagree	15.54	27.67	97	19.40	
	Don't know	48.97	22.01	202	40.40	
Antibiotic used for headache treatment	Total agree	33.14	47.80	189	37.80	< 0.01 Sig.
	Total disagree	29.62	31.45	151	30.20	
	Don't know	37.24	20.75	160	32.00	
All antibiotics are similar in the same activity and way of use	Total agree	12.90	11.32	62	12.40	< 0.01 Sig.
	Total disagree	26.98	52.83	176	35.20	
	Don't know	60.12	35.85	262	52.40	
Used overdose of antibiotics	Total agree	11.73	8.18	53	10.60	<0.01 Sig.
	Total disagree	61.29	77.99	333	66.60	
	Don't know	26.98	13.84	114	22.80	
Bacteria become resistant to antibiotics	Total agree	26.98	35.22	148	29.60	0.10 N.S
	Total disagree	12.61	14.47	66	13.20	
	Don't know	60.41	50.31	286	57.20	

Sig.= Significant, N.S= Not significant

Table 6 present there were no difference between male and female in the statements; taking antibiotic has adverse effect on your body (P = 0.11); Antibiotic kill normal flora (P = 0.57), and; bacteria become resistant to antibiotic (P = 0.10) (Table 6).

Table 7: Association between awareness of the study samples toward antibiotic use and education levels

Statements		Illiterate	Primary	Intermediate	Institute	College	Post-graduate	Total		p-value
								n	%	
Used antibiotics on advice of someone other than a physician or pharmacist	Never	47.37	40.00	48.99	40.43	39.71	44.44	230	46.00	0.02 Sig.
	Some time	34.21	45.00	47.65	48.94	52.94	44.44	236	47.20	
	Every time	18.42	15.00	3.36	10.64	7.35	11.11	34	6.80	
Selection of antibiotics depending on the price	Never	42.11	15.00	27.52	51.06	33.82	55.56	156	31.20	0.07 N.S
	Some time	34.21	60.00	51.01	27.66	48.53	33.33	238	47.60	
	Every time	23.68	25.00	21.48	21.28	17.65	11.11	106	21.20	
Selection of antibiotics according to their colour and shape	Never	50.00	40.00	51.68	44.68	57.35	55.56	254	50.80	0.36 N.S
	Some time	39.47	50.00	33.89	29.79	30.88	33.33	174	34.80	
	Every time	10.53	10.00	14.43	25.53	11.76	11.11	72	14.40	
Used old prescription of antibiotics	Never	44.74	67.50	61.07	65.96	58.82	44.44	301	60.20	0.20 N.S
	Some time	42.11	17.50	31.88	25.53	33.82	55.56	158	31.60	
	Every time	13.16	15.00	7.05	8.51	7.35	0.00	41	8.20	
Stop taking the antibiotic when feeling better	Never	60.53	65.00	46.98	44.68	58.82	55.56	255	51.00	0.37 N.S
	Some time	28.95	30.00	39.60	36.17	29.41	33.33	181	36.20	
	Every time	10.53	5.00	13.42	19.15	11.76	11.11	64	12.80	
Change the antibiotic if do not feel better immediately	Never	23.68	40.00	30.87	19.15	20.59	44.44	144	28.80	0.10 N.S
	Some time	26.32	30.00	41.28	55.32	47.06	55.56	208	41.60	
	Every time	50.00	30.00	27.85	25.53	32.35	0.00	148	29.60	
Used antibiotics against colds and flu	Never	31.58	20.00	25.84	31.91	27.94	22.22	133	26.60	0.90 N.S
	Some time	36.84	50.00	45.64	46.81	50.00	55.56	231	46.20	
	Every time	31.58	30.00	28.52	21.28	22.06	22.22	136	27.20	
Used antibiotics as injection	Never	34.21	25.00	36.91	44.68	32.35	33.33	179	35.80	0.32 N.S
	Some time	55.26	60.00	51.34	36.17	60.29	66.67	262	52.40	
	Every time	10.53	15.00	11.74	19.15	7.35	0.00	59	11.80	
Antibiotic used as one capsule when needed	Never	23.68	22.50	17.79	40.43	39.71	33.33	120	24.00	< 0.01 Sig.
	Some time	42.11	57.50	62.42	42.55	52.94	55.56	286	57.20	
	Every time	34.21	20.00	19.80	17.02	7.35	11.11	94	18.80	
Used overdose of antibiotics	Never	73.68	42.50	74.16	74.47	80.88	55.56	361	72.20	0.01 Sig.
	Some time	21.05	47.50	21.48	19.15	13.24	44.44	113	22.60	
	Every time	5.26	10.00	4.36	6.38	5.88	0.00	26	5.20	
Complete the course of prescribing antibiotics	Never	23.68	32.50	21.81	17.02	17.65	11.11	108	21.60	0.27 N.S
	Some time	34.21	25.00	50.00	36.17	41.18	33.33	220	44.00	
	Every time	42.11	42.50	28.19	46.81	41.18	55.56	172	34.40	

Sig.= Significant, N.S= Not significant

Table 7 reveals that there were significant relations between level of education and following statements; Used antibiotics on advice of someone other than a physician or pharmacist (P= 0.02); Antibiotic used as one capsule when needed (P= 0.01); Used overdose of antibiotics (P= 0.01) (Table 7).

Table 8: Attitudes of awareness toward antibiotic use among different education levels

Statements		Illiterate	Primary	Intermediate	Institute	College	Post-graduate	Total		p-value
								n	%	
Taking antibiotics has adverse effect on your body	Total agree	15.79	5.00	21.48	25.53	30.88	33.33	108	21.60	0.01 Sig.
	Total disagree	13.16	40.00	24.50	25.53	29.41	44.44	130	26.00	
	Don't know	71.05	55.00	54.03	48.94	39.71	22.22	262	52.40	
Unnecessary use of antibiotics has adverse effect on your body	Total agree	23.68	20.00	29.87	25.53	51.47	66.67	159	31.80	< 0.01 Sig.
	Total disagree	13.16	15.00	31.54	36.17	26.47	22.22	142	28.40	
	Don't know	63.16	65.00	38.59	38.30	22.06	11.11	199	39.80	
Complete the course of prescribing antibiotics and avoid cutting the course of treatment	Total agree	28.95	27.50	37.58	44.68	50.00	66.67	195	39.00	0.02 Sig.
	Total disagree	55.26	32.50	31.88	27.66	30.88	22.22	165	33.00	
	Don't know	15.79	40.00	30.54	27.66	19.12	11.11	140	28.00	
Antibiotics kill normal flora	Total agree	2.63	25.00	16.78	29.79	38.24	44.44	105	21.00	< 0.01 Sig.
	Total disagree	15.79	15.00	10.07	29.79	14.71	0.00	66	13.20	
	Don't know	81.58	60.00	73.15	40.43	47.06	55.56	329	65.80	
Antibiotic is a fever lowering agent	Total agree	23.68	17.50	20.47	25.53	42.65	66.67	124	24.80	< 0.01 Sig.
	Total disagree	57.89	47.50	32.21	40.43	30.88	0.00	177	35.40	
	Don't know	18.42	35.00	47.32	34.04	26.47	33.33	199	39.80	
Antibiotics effective against colds and flu	Total agree	65.79	32.50	34.23	38.30	55.88	55.56	201	40.20	< 0.01 Sig.
	Total disagree	18.42	20.00	16.78	27.66	25.00	22.22	97	19.40	
	Don't know	15.79	47.50	48.99	34.04	19.12	22.22	202	40.40	
Antibiotic used for headache treatment	Total agree	68.42	30.00	36.91	38.30	29.41	33.33	189	37.80	< 0.01 Sig.
	Total disagree	15.79	42.50	25.50	44.68	39.71	44.44	151	30.20	
	Don't know	15.79	27.50	37.58	17.02	30.88	22.22	160	32.00	
All antibiotics are similar in the same activity and way of use	Total agree	7.89	10.00	13.09	8.51	16.18	11.11	62	12.40	< 0.01 Sig.
	Total disagree	44.74	22.50	27.18	51.06	57.35	66.67	176	35.20	
	Don't know	47.37	67.50	59.73	40.43	26.47	22.22	262	52.40	
Used overdose of antibiotics	Total agree	7.89	7.50	12.08	6.38	10.29	11.11	53	10.60	0.02 Sig.
	Total disagree	78.95	47.50	63.76	76.60	76.47	66.67	333	66.60	
	Don't know	13.16	45.00	24.16	17.02	13.24	22.22	114	22.80	
Bacteria become resistant to antibiotics	Total agree	10.53	7.50	26.17	34.04	58.82	77.78	148	29.60	< 0.01 Sig.
	Total disagree	5.26	10.00	12.42	25.53	16.18	0.00	66	13.20	
	Don't know	84.21	82.50	61.41	40.43	25.00	22.22	286	57.20	

Sig.= Significant, N.S= Not significant

Table 8 shows that there were statistical associated between level of education with the following statements; Taking antibiotics has adverse effect on your body (P= 0.01); Unnecessary use of antibiotics has adverse effect on your body (P < 0.01); Complete the course of prescribing antibiotics and avoid cutting the course of treatment (P= 0.02) Antibiotics kill normal flora (P < 0.01); Antibiotic is a fever lowering agent (P < 0.01); Antibiotics effective against colds and flu (P < 0.01); Antibiotic used for headache treatment (P < 0.01); All antibiotics are similar in the same activity and way of use (P < 0.01); used overdose of antibiotic (P= 0.02), and; Bacteria become resistant to antibiotics (P < 0.01) (Table 8).

DISCUSSION

Antibiotic resistance is a serious and growing problem in nations around the globe ⁽²⁵⁾. A direct relationship between rates of antibiotic use and misuse with the rising bacterial resistance has been reported⁽⁶⁾. The current study was assessed the antibiotic abuse in community of Erbil city, this study investigate the prevalence of self medication among population of which, 62.3% used antibiotics for headache, 49.8% for fever and 48.3% for cold and flu.

The result found that about half of the people use antibiotics on advice of someone other than a physician or pharmacist, in compared with others studies, 46% of the community uses antibiotics without prescription in Jordan ⁽²⁶⁾. While in Greek population, the level of use of non-prescribed antibiotic was as high as 74.6% ⁽²⁷⁾. This difference in results may be attributable to the public awareness, different cultures, and health system. Antibiotics resistances are affected not only by over dose of it but also by the way of antibiotics used, which emphasizing pharmacists role and responsibility in stopping antibiotic sale without prescription. The prescribing practices of practitioners are not regulated ⁽²⁸⁾.

The study found about half of participants declared about the price of which some of the people may not have enough money to go to physicians or have time. In addition, the study found that some of the people choose antibiotic according to the colour and shape thus, it is necessary to raise awareness about the threat of antibiotic resistance and the importance of prudent antibiotic use. The study were conclusion that weak awareness and irrational of antibiotics used among people in Erbil city.

CONCLUSION

Self-medication and irrational use of antibiotics is common among the people in the community in Erbil city. Education increases attitudes of awareness toward antibiotic use.

RECOMMENDATION

The development of antibiotics management and the promotion of the role of the pharmacist in antibiotics prescribing, also improved strategies for antibiotics prescribing.

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