

## Audit on the Knowledge, Attitudes and Practice about the Misuse of Antibiotics in Upper Respiratory Tract Infections in Children among Parents in Al-Najaf Province.

دراسة تدقيقية في المعارف و الميول و السلوكيات المتعلقة باستخدام الآباء والأمهات الخاطئ للمضادات الحيوية لعلاج التهابات المجاري التنفسية العليا عند الأطفال في محافظة النجف .

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### الخلاصة:

**خلفية البحث:** التهاب المجاري التنفسية العليا مرض شائع الانتشار بين الأطفال. بالرغم من ان المسبب له هو التهاب فايروسي لكن اغلب الآباء والأمهات يميلون لاستخدام المضادات الحيوية الغير صحيح مما يؤدي إلى ظهور أنواع من البكتريا مقاومه للمضادات الحيوية وهذه من أهم المشاكل الصحية المتنامية في العالم. بالإضافة إلى ذلك فان الاستخدام المفرط للمضادات الحيوية يؤدي إلى زيادة عبئ الأمراض المزمنة ، وارتفاع كلفة الخدمات الصحية و ظهور الأعراض لجانبية (مثل الأعراض الجانبية المؤثرة على الجهاز الهضمي) و التي تكون مؤثرة أكثر في فئة الأطفال

**الهدف:** معرفة العوامل ذات العلاقة بالاستخدام المفرط للمضادات الحيوية بين الآباء و الأمهات المراجعين لمراكز الرعاية الصحية الأولية في محافظة النجف

**المنهجية:** دراسة مقطعية تمت في محافظة النجف خلال الفترة من ١- آذار إلى ١- حزيران لسنة ٢٠١٤. خلال هذه الدراسة تم اختيار اثنان من مراكز الرعاية الصحية الاولية بشكل عشوائي وتم إجراء المقابلة مع ٤٣١ من الآباء و الأمهات المراجعين لهذه المراكز بطريقه النظام العشوائي مرتين أسبوعيا على مدى فترة البحث. جمعت المعلومات عن طريق الحوار المباشر مع الآباء والأمهات بواسطة ورقة استبيان خاصة أعدت لهذا الغرض .

**النتائج:** بينت الدراسة وجود ارتباط مؤثر ( $p < 0.001$ ) بين معدل المعرفة ( $11.09 \pm 2.94$ ) ومعدل الميول ( $13.87 \pm 3.59$ ) و بين معدل المعرفة ومعدل السلوك ( $8.77 \pm 2.31$ ) وبين الميول ( $13.87 \pm 3.59$ ) والسلوك ( $8.77 \pm 2.31$ ). وان العوامل ذات العلاقة بالاستخدام المفرط للمضادات الحيوية بين الآباء و الأمهات المراجعين لمراكز الرعاية الصحية الأولية في محافظة النجف كانت صغر العمر الآباء أو الأمهات ( $P=0.001$ )، يمتلك تحصيل دراسي واطى ( $p < 0.001$ )، لديه مهنة حرة ( $P=0.001$ ) ويقطن في منطقته ريفيه ( $P=0.002$ ) هي عوامل مؤثرة ذات علاقة بالمعرفة غير الكافية، الميول الغير صحيحة والسلوك الخاطئ في استخدام المضادات الحيوية لعلاج التهاب المجاري التنفسية العليا الأطفال .

**الاستنتاجات:** العوامل الرئيسية التي تحتاج إلى تدخل للمجاميع المستهدفة و ذات العلاقة بالاستخدام المفرط للمضادات الحيوية بين الآباء والأمهات المراجعين لمراكز الرعاية الصحية الأولية في محافظة النجف كانت صغر العمر الآباء أو الأمهات، يمتلك مستوى تحصيل دراسي واطى، لديه مهنة حرة ويقطن في منطقته ريفيه .

**التوصيات:** القيام بحملات التثقيف الصحي بما يخص استعمال المضادات الحيوية ودورها في علاج الالتهابات التنفسية للأطفال والتي تشمل العاملين في المجال الصحي والآباء والأمهات الذين يزورون المراكز الصحية وكذلك توصي الدراسة بوضع القيود حول صرف وشراء المضادات الحيوية من الصيدليات بحسب ضوابط تحددها وزارة الصحة.

### Abstract:

**Backgrounds:** Upper respiratory tract infections are common in children. The cause of these infections are usually viral, but parents' attitudes often contribute to inappropriate prescription of antibiotics, promoting antibiotic resistance, which is an important growing global health problem. In addition to that, lead to increase the burden of chronic diseases, rising costs of health services and the development of side effects (e.g. adverse gastrointestinal effects) which are more significant in children.

**Objectives:** identifying possible associated factors with antibiotic misuse among parents who attended primary health care in Al-Najaf province

**Methods:** A cross-sectional study was carried out in Al-Najaf during the period from the first of March to the first of June 2014. Two primary health care centers were randomly selected and 431 fathers and mothers who attended these centers were interviewed and randomly selected by systematic random sample technique, data collection were done twice weekly during the period of the study. Data was gathered through structured questionnaire which was used to identify different variables by face to face interview.

**Results:** There was positive significant association between mean knowledge score ( $11.09 \pm 2.94$ ) and mean attitude scores ( $13.87 \pm 3.59$ ), between mean knowledge ( $11.09 \pm 2.94$ ) and mean practice score ( $8.77 \pm 2.31$ ) and between mean attitude scores ( $13.87 \pm 3.59$ ) and mean practice score ( $8.77 \pm 2.31$ ) ( $p < 0.001$ ). The associated factors of AB misuse in children with URTI among Al Najaf parents being a young age parent ( $P = 0.001$ ), having low educational level ( $P < 0.001$ ), being a self-employed ( $P = 0.001$ ). And residence in a rural area ( $P = 0.002$ ) which are significantly associated to inadequate knowledge, inappropriate attitudes, and wrong practices.

**Conclusions:** This study has identified the main groups of parents that should be targeted in future intervention programs. These groups are small age parents, those with low educational level, self-employed and those who live in rural area.

**Recommendation:** Health education campaigns, medical staff education as well as public awareness campaigns are needed to explain the role of antibiotics in URTI treatment. And stronger legal restrictions should be introduced on the selling of antibiotics in community pharmacies according to special guidelines recommended by the ministry of health

**Keywords:** Antibiotic misuse, knowledge, attitude and practice, URTI.

## INTRODUCTION

Although antibiotics are targeted to kill or inhibit the growth of bacteria and have no effect on viral agents<sup>(1)</sup> they are often inappropriately used to treat viral infections such as upper respiratory tract infections (URTI). URTI is a universal illness and the cause is usually viral, with fewer than 10% of cases caused by bacteria<sup>(2)</sup>. URTI (including the common cold, laryngitis, pharyngitis/tonsillitis, acute rhinitis, acute rhinosinusitis and acute otitis media)<sup>(3)</sup> are the most common illnesses affecting children<sup>(4)</sup> On average, children experience around six to eight upper respiratory tract infections (URTIs) each year<sup>(5)</sup> Particularly susceptible to URTI are young children, especially those who attend day care centers<sup>(6)</sup>. URTIs are usually self-limiting and resolve in the same amount of time regardless of antibiotic consumption<sup>(7)</sup>.

The relationship between antibiotic use and resistance development is strong and supported by several studies<sup>(8,9)</sup> The emergence of bacterial strains resistant to antimicrobial agents presents a growing concern worldwide<sup>(10)</sup> Antibiotics abuse in upper respiratory infections (URTIs) in children is an important factor contributing to the development of antibiotic resistance and therefore the judicious use of antibiotics in pediatric clinical practice is crucial<sup>(11)</sup>. It has been estimated that 20–50% of all antimicrobial use for children with URTI is inappropriate<sup>(12)</sup>.

Antibiotics misuse/overuse may cause several problems, in addition to development of antibacterial resistance<sup>(13,14)</sup>, lead to increase the burden of chronic diseases and rising costs of health services<sup>(15)</sup>, and the development of side effects (e.g. adverse gastrointestinal effects)<sup>(16)</sup>. These adverse effects are more significant in children according to Simasek<sup>(17)</sup>. Factors leading to antimicrobial overuse in children are complex, involving, among other factors, parental knowledge and attitude, physician beliefs as well as constraints of daily practice<sup>(2,18)</sup>.

This study was done to identifying possible associated factors with antibiotic misuse among parents who attended primary health care in Al –Najaf province.

## SUBJECT AND METHODS:

This study was a cross-sectional study, carried out at two primary health care centers in Al Najaf province. These are Alkarama health care center and Al Abbasea health care center.

These centers selected by random sampling. Parents who attended these primary health care centres were interviewed twice weekly during the period of the study from the first of March 2014 to the first of June 2014. The total sample of parents was 431 were enrolled in the study was collected by systematic random sampling (every other one is chosen). 31 parents refuse the participation from the beginning or didn't complete the interview.

Sample size was calculated according to the Danial equation which indicated that the proposed sample size. Four hundred respondents were surveyed successfully at those centers during the time of study application.

A structured questionnaire, mostly derived from previous studies<sup>(19,20)</sup> translated in to Arabic with some modification to suit our society .Questionnaire which prepared to collect information consists of five parts. The first one includes socio-demographic characteristics and the second part includes child’s URTI related information. The third part consists of four questions regarding knowledge about AB use. The fourth part consists of five questions regarding attitude about AB use, meanwhile, the last part consists of three questions regarding practice about AB use. Each question (apart from those included in the demographic data section and child’s URTI related information) was a format of five possible answers (accepting only one right answer), according to the Likert scale which measures the extent to which a person agrees or disagrees with the question. 5-point Likert scale: 1 = strongly agree, 2 = agree, 3 = uncertain, 4 = disagree and 5 = disagree strongly or 1 = always, 2 = most of the times, 3 = often, 4 = sometimes and 5 = never.

Then the score of each participant answers was obtained and the mean of whole participants answers score was calculated. Statistical analysis was carried out using SPSS version 18. Continuous variables were presented as mean and 95% confidence interval.

## RESULTS:

**Table 1: Mean difference of KAP by parents’ socio-demographic characteristics**

Variable	Mean± SD	r	P value
Knowledge	11.09± 2.94	0.538	<0.001*
Attitude	13.87± 3.59		

**\*p value ≤ 0.05 is significant**

Table 1 show that there were significant mean differences of KAP by age groups, sex, educational level and occupational status.

**Table 2: Correlation between knowledge and attitude**

Variable	N	KAP Mean ± SD	P value	
Age group	< 20 years	28	31.11± 5.29	
	20-30 years	175	32.87± 6.23	0.012*
	31-40 years	158	34.76± 8.13	
	> 40 years	39	35.31± 8.80	
Sex	Male	67	35.36± 8.43	
	Female	333	33.41± 7.05	
Residence	Urban area	313	34.04± 7.46	0.117
	Rural area	87	32.64± 6.74	
Educational level	Illiterate	16	30.12± 5.67	
	Primary school	170	32.02± 6.28	<0.001*
	Secondary school	137	34.34± 7.26	
	Diploma/ bachelor	77	37.18± 8.44	
Occupational status	Gov. Employee	109	36.25± 8.63	
	Self-Employed	41	31.68± 6.86	<0.001*
	Unemployed	250	32.97± 6.49	
Family income	Enough and more	26	34.73± 9.53	
	Enough	311	34.02± 7.29	0.090
	Not enough	63	31.92± 6.27	
No. of children	≤ 3 children	302	33.72± 7.04	
	> 3 children	98	33.78± 8.18	0.937

**P.value ≤ 0.05 is significant**

Table 2 shows that, there was direct significant correlation between knowledge and attitude

**Table 3: Correlation between knowledge and practice**

Variable	Mean± SD	r	P value
Knowledge	11.09± 2.94	0.399	<0.001*
Practice	8.77± 2.31		

**P value ≤ 0.05 is significant**

Table 3 shows that, there was direct significant correlation between knowledge and practice

**Table 4: Correlation between attitude and practice**

Variable	Mean± SD	r	P value
Attitude	13.87± 3.59	0.590	<0.001*
Practice	8.77±2.31		

**\* p value ≤ 0.05 is significant**

Table 4 shows that, there was direct significant correlation between attitude and practice.

## DISCUSSION

This is the first KAP study carried on parents who attended the primary health care centers in Al-najaf and the current paper aims to determine associated factors with antibiotic overuse in Al-najaf. This study was able to portray the demographic profile of parents prone to antibiotic misuse. The main parental demographic characteristics associated with antibiotic misuse include being a young age parents, having low educational level, being a self-employed and being amother. Parental age that show a significant association with the KAP score also has been reported as a factor affecting antibiotics use in other studies.<sup>(21,22)</sup> Older parental age and higher educational level were clearly associated with better knowledge in this study, this result agrees with another research carried

Out in U.A.E .in 2006 .This can be explained by that younger parents were worried about fever, older parents were more likely to worry by the altered behavior of their child during a URTIs, they know that antibiotics are overused, that it is better to watch a child with URTI rather than administer antibiotics and concern declaredly over the side effects of antibiotic treatment.<sup>(23)</sup>

In this study sex of the parents is significantly correlated with the KAP score of the parents, being a mother is associated with lower KAP score than father. While in some other studies in developed countries like in Greece the fathers appear more responsible for AB misuse than the mothers.<sup>(24)</sup> Another important factor affecting AB misuse in the study is educational level .Higher educational level had better KAP score. There have been several studies indicating a positive relationship between parental educational level and their expected knowledge about antibiotic treatment

In another studies<sup>(23, 25)</sup>, It is probable that low education is related to inadequate information about judicious antibiotic use which can lead to improper practices. Also another previous studies<sup>(26,27)</sup> reveals that parental educational level is inversely related to the percentage of parents answering incorrectly. On the contrary, parents with higher educational status seem to better acknowledge the risks of antibiotic misuse, making pediatricians more skeptical to offer antibiotic treatment<sup>(28)</sup>. Being a self-employed is one of the factors associated with AB misuse in this study may be due to that full-time employed parents are more likely to request antibiotics<sup>(29)</sup>. In this study respondents' knowledge of appropriate antibiotic use is correlating positively with attitude and practice, indicating that there is direct relationship

between parental knowledge level with their attitude and practice of AB use in URTIs Association was also observed between several knowledge and attitude statements. This was consistent with other studies like in Malaysia and Korea<sup>(30)</sup>, in Korea where adequate knowledge of antibiotics was shown to be a predictor for appropriate attitudes toward antibiotics and their use where participants with adequate knowledge were 1.52 times more likely to demonstrate appropriate attitude.<sup>(31)</sup> In this study the answering of KAP questionnaires shows that Al-Najaf parents need more education regarding AB use especially in URTIs.

Today, many countries like Britain and Holland are focusing on public education aimed at changing the irrational and indiscriminate use of antibiotics in the community in order to delaying the development resistance to antibiotics<sup>(32,33)</sup>.

## CONCLUSIONS:

This study has identified the main groups of parents that should be targeted in future intervention programs. These groups are small age parents, those with low educational level, self-employed and those who live in rural area.

## RECOMMENDATIONS:

AB misuse is a common problem in al Najaf province and need future effective intervention programs through creating a multidisciplinary health teams sharing the related sectors in our community as health education, media, NGOS, religious sector and community participation to adverse this problem within available resources.

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