

Parental Knowledge, Attitude, and Practices on Antibiotic use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam cite at Saudi Arabia 2022

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Abstract:

Background

We found that Saudi Arabia parents' lack of knowledge on antibiotic use for pediatrics Upper Respiratory Tract Infections during COVID-19 Pandemic resulted in inappropriate attitudes and practices. On the other hand, there is a trusted relationship between parents and pediatrician's, and there is confidence in the information and prescriptions provided to them from doctors: only a few parents would change their pediatricians according to antibiotic prescription patterns. However, parents also believed that inappropriate use of antibiotics reduces their efficacy and drives resistance Especially during COVID-19 pandemic. Unfortunately, a large number of parents did not agree that Upper Respiratory Tract Infections during COVID-19 Pandemic are mostly viral of origin; parents' also self-limited antibiotic use, and expected antibiotics to be a choice for pediatrics Upper Respiratory Tract Infections during COVID-19 Pandemic treatment.

This study aimed: To assessment Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in **Dammam city** at Saudi Arabia 2022.

Methods: A cross -sectional research design was carried out between Feb 2022 to May 2022 , included 200 patients who were randomly selected from visiting to the primary health centers a structured questionnaire and observation checklist was used for data collection. Using 3 part Questionnaire and analyzed via SPSS v24 software. Chi-square test was run to analyses associations between socio-demographic data.

Results: show regarding the age majority of the study groups were in the age 51-60 (35.0%) years, regarding the sex many of the respondents were female (57.0 %), regarding the education status, the majority of the respondents had Secondary school were (38.0%), regarding the Medical Insurance, the majority of the respondents Public were (75.0%), regarding the Age of child, the majority of the respondents from 12-16 years were (59.0%).

Conclusion. Our findings highlight the need to decrease misconceptions regarding antibiotic use to childhood Upper Respiratory Tract Infections during COVID-19 Pandemic by providing relevant education for parent's characteristics, especially during the COVID-19 pandemic, better understanding of the knowledge, attitude, and practices regarding antibiotic during COVID-19 Pandemic.

Keywords: Parental, Knowledge, Attitude, Practices, antibiotic, Children, Upper Respiratory Tract Infections, COVID-19, in Dammam cite.

Introduction

As Upper Respiratory Tract Infections are common in children and adults, overt or inappropriate antimicrobial treatment of Upper Respiratory Tract Infections even for viral infections is not unusual and has been reported in many studies in both developed and developing countries.(1) The discovery of antibiotics is considered one of the greatest achievements of the twentieth century, due to their pivotal role in saving the lives of millions of patients worldwide.(2) Since their landmark discovery, the use of antibiotics has grown enormously. For instance, in 2010 azithromycin and amoxicillin were of the ten most commonly prescribed drugs in the United States .(3)

Nevertheless, this tremendous growth in antibiotic utilization is not void of dangers, as inappropriate prescription of antibiotics by physicians and overuse of antibiotics by the public, since it raises serious concerns about the emergence of resistant bacterial strains. These concerns stem from the well-established relationship between antibiotic use and resistance, as previous research has demonstrated that countries with the highest antibiotic consumption have the highest prevalence of resistant pathogens. (4) As a result, over the past decade, the World Health Organization (WHO) recognized the emergence of antibiotic resistance as one of the 10 top global public health threats facing humanity(5). Based on numerous reports, factors leading to antimicrobial overuse in children are complex, involving easy access to antibiotics for self-medication(6). However, antibiotics are often used inappropriately, especially for the treatment of Upper Respiratory Tract Infections during COVID-19 Pandemic in children, even though there is sufficient evidence to support the viral origin of these conditions and the fact that this practice does not change the duration and severity of symptoms(7,8). Many issues have been raised because of overuse or misuse of antibiotics, such as the high cost of health services, rise of side effects such as diarrhea, and increased antibacterial resistance (9). There is a strong association between antibiotic overuse and the development of resistance, and countries with high rates of antibiotic consumption have reported a high incidence of resistant pathogens(10). Furthermore, such infections in children bear a lot of economic burden on parents and healthcare system (11). Coronavirus infectious

disease 2019 (COVID-19), declared as a pandemic on the 11th of March of 2020, may cause Upper Respiratory Tract Infections during COVID-19 Pandemic symptoms and, in the majority of children, warrants only symptomatic treatment (12).

Several studies reported the relationship between antibiotic use and the development of resistance (13). Countries consuming the highest amounts of antibiotics have the highest rates of resistance (14). Despite the fact that the majority of Upper Respiratory Tract Infections are viral in origin (15), antibiotic prescribing for Upper Respiratory Tract Infections is a common practice in pediatrics (16). It is probable that 20–50 % of all antimicrobial use is medically inappropriate (17). Inappropriate prescribing of antibiotics is the most important reason behind the development of antibiotic resistance (18).

Literature review:

No studies on parents' knowledge, attitude, and practices on antibiotic use have been thus far conducted during the pandemic. Despite numerous national educational activities in Saudi Arabia on judicious antibiotic use, antibiotic consumption in the community has been found to be the highest amongst 31 European countries (19,20).

A nationwide study conducted in 2010 demonstrated that Saudi Arabia parents understand the benign course of Upper Respiratory Tract Infections during COVID-19 Pandemic, rarely give antibiotics without medical advice, and contribute less than expected to antibiotic misuse (21). The present study aims to explore parental knowledge, attitude, and practices (KAP) regarding antibiotic use for Upper Respiratory Tract Infections during COVID-19 Pandemic and COVID-19 infection in Saudi Arabia, during the COVID-19 pandemic, with the view of designing educational strategies focusing on those parents who are prone to antibiotic misuse.(22)

Study from Northern Ethiopia who scored lower percentages of correct answers (31.4%) (23), in the latter study, 30% of the responders believed incorrectly that antibiotics were needed for viral infections, and 20.6% declared to be uncertain. Of note, this percentage is even smaller than other studies in China and Pakistan (79% and 83%, respectively) (24).

The findings of survey demonstrate that Greek parents do not treat their children without medical advice. Only 12.6% of the participants reported that they have sometimes purchased antibiotics without medical prescription by the drug store. This finding is lower than in other countries such as Peru (23.5%) and Lebanon (22.5%)(25) . studies investigating the patterns of antibiotic consumption and its appropriateness in community pharmacies or households revealed unacceptably high frequency of over the counter dispensing of antibiotics from pharmacies, as 46% of dispensed antibacterial were without a prescription and were dispensed based either on the

patient's desire or based on pharmacists' advice. Furthermore, the use of 34% of the antibiotics prescribed over the counter was judged to be inappropriate (26).

Rationale:

It would also be useful to assess Parental Knowledge, Attitude, and Practices on Antibiotic Use for Childhood Upper Respiratory Tract Infections during COVID-19 Pandemic, demonstrated the need for educational interventions to increase the awareness of parents about antibiotics to reduce inappropriate use and its consequences Childhood Upper Respiratory Tract Infections during COVID-19 Pandemic, need to training pre and post-training, specifically designed for that purpose, for both parents .Furthermore, studies assessing country-specific determinants of antibiotic misuse, such as country wealth and health care system particularities, would also be useful for the implementation of multilevel interventional programs aimed at limiting the spread of antibiotic resistance. Despite multiple efforts to achieve that in Saudi Arabia during the last decades, there is still room for further development. Public health interventions at a national level should be constant and sustainable following the successful examples of other European countries. Finally, antimicrobial stewardship activities and interventions should improve during the COVID-19 pandemic.

Aim of the study:

To assessment Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam cite at Saudi Arabia 2022.

Objectives -:

- To assessment Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam city at Saudi Arabia 2022.
- To assess the awareness to assessment Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam city at Saudi Arabia 2022.

Methodology -:

-A cross sectional survey will conduct to pilgrims who resident in Dammam city during between Feb 2022 to May 2022. The survey will conduct on a convenience sample of 200 participant

residents in Dammam city matching the inclusion criteria and exclusion criteria:

Inclusion criteria:

- Residency in Dammam city .
- over 18 years of age.
- able and willing to participate in the study.

Exclusion criteria:

- Residency outside Dammam city.
- Parental sign Informed consent.

Sample size

Directorate General of Health Affairs in the Eastern Province revealed the approval of 17 new primary health care centers in Dammam, Khobar and Qatif, also number of 8 centers in Dammam and Al-Khobar. He added that the primary health care centers in Dammam are: (Al-Nour District Center, Al-Atheer District Center, Al-Adamah District Center, Al-Mubarakiyah District Center, Al-Faisaliyah District Center) .

Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 in Dammam city at Saudi Arabia 2022 in a primary health care . The sample size has been calculated by applying Raosoft sample size calculator based on (The margin of error: 5%, Confidence level: 95%, and the response distribution was considered to be 20%) accordingly the Sample size is (200) patients of Children Upper Respiratory Tract Infections during COVID-19 among patients in PHC at Dammam Saudi Arabia in 2022 (male and female) after official communication with PHC Dammam City, and adding 10 more to decrease margin of error. After adding 5% oversampling, the minimum calculated sample has been 200. Computer generated simple random sampling technique was used to select the study participants.

Sampling technique:

Systematic random sampling technique is adopted. After that, by using random number generator, then simple random sampling technique has been applied to select the participant. Also, convenience sampling technique will be utilized to select the participants in the study. By using systematic sampling random as dividing the total patients by the required sample size; (200) .

Data collection tool:

To collect data Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam cite at Saudi Arabia structured questionnaire was used. It was developed by the researcher after reviewing of current national and international related literature. It composed of 33 questions. This included the following parts:

Part one: biosocial demographic characteristics: as age, sex, phone number, leader name, years of education, area of residence, and presence of chronic diseases as diabetic mellitus.

Part two: this part including questions to assess the knowledge, attitude and practices regarding Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic such as signs and symptoms of mode of transmission, methods of prevention, high risk groups. Questions concerning attitude and practices included Parental and community reaction toward children with Upper Respiratory Tract Infections during COVID-19 Pandemic.

Following a short briefing about the study, informed consent will obtain from each participant who agreed to join the survey. Ethics approval will obtain from charity research center. The study tool was developed by the researcher and checked for validity and reliability. Pilot study was done on 10 Parental to check and ensure the clarity, applicability and feasibility of tools. Parental completed the surveys themselves; however, research team members helped those who were unable to complete the questionnaires themselves.

Data management and statistical analysis:

After data collection, it was coded and entered to the computer. The data was checked for correction of any errors during data entry. SPSS program version 24.0 was used for data presentation (tables, graphs and mathematical presentations) and statistical analysis. Number and percent were used for presenting qualitative variables. Mean and mean percent were carried out for the quantitative variables. The 0.05% level of significance was used. Fissure Exact test was done to determine the correlations. Correlations were calculated as Less than or equal 0.05 was considered significant correlation and Less than or equal 0.01 was considered highly significant correlation .

Scoring system for level of knowledge, attitude and practices .

Ethical considerations:

Ethics approval and consent to participate this study was first approved by the Institutional Review Board of PHC, Ministry of Health. All information was kept confidential, and results will be

submitted to the department as feedback. The researcher described the aim and objectives of the study for the residents. No names were required to assure confidentiality of data, and all information was kept confidential only for this study's purposes.

Budget: Self-funded

Results:

Table 1 . Distribution of the demographic characteristics of the study participants (n=200) .

	N	%
Parental age		
18-30	48	24
31-50	22	11
51-60	70	35
>60	60	30
Sex		
Male	86	43
Female	114	57
Education		
Primary school	50	25
Secondary school	76	38
College	32	16
University	42	21
Chronic diseases?		
Yes	158	79
No	42	21
Medical Insurance		
Public	150	75
Private	30	15
Both	16	8
None	4	2
Family income		
Low	70	35
Middle	96	48
High	34	17

Age of child		
0–5 years	38	19
6–11 years	44	22
12–16 years	118	59
Single-parent family		
Yes	168	84
No	32	16
Access to the healthcare system		
Low	66	33
Moderate	58	29
Good	76	38

Table 1 show regarding the age majority of the study groups were in the age 51-60 (35.0%) years were (30.0%) followed by age >60 years were(30.0%) but the 18-30 years were (24.0%), regarding the sex many of the respondents were female (57.0 %) while male were (43.0%). Regarding the education status, the majority of the respondents had Secondary school were (38.0%) followed by primary school were(25.0%) but university were(21.0%), regarding the Chronic diseases, the majority of the respondents answer Yes were (79.0%) followed by No were (21.0%), regarding the Medical Insurance, the majority of the respondents Public were (75.0%) followed by private were (15.0%), regarding the Family income, the majority of the respondents middle were (48.0%) followed by low were (35.0%), regarding the Age of child, the majority of the respondents from 12-16 years were (59.0%) followed by from 6-11years were (22.0%), regarding the Single-parent family, the majority of the respondents answer Yes 16 were (84.0%) followed by No were (16.0%), regarding the Access to the healthcare system, the majority of the respondents good were (38.0%) followed by low were (33.0%),

Table 2 Distribution of Parental knowledge regarding antibiotic use in children with Upper Respiratory Tract Infections during COVID-19 Pandemic

Variable		Satisfaction				% of Agreement	Chi-square	
		Strongly agree	Agree	Disagree	Strongly disagree		X ²	P-value
Antibiotics can be used for any feverish child	N	90	44	30	36	73.5	44.640	0.000
	%	45	22	15	18			

Children with flu like symptoms get better faster when antibiotics are used	N	68	56	44	32	70	14.400	0.002
	%	34	28	22	16			
Antibiotics do not have any side effects	N	38	70	76	16	66.25	47.520	0.000
	%	19	35	38	8			
Inappropriate use of antibiotics reduces their efficacy and drives bacterial resistance	N	98	82	10	10	83.5	130.560	0.000
	%	49	41	5	5			
Scientists can produce new antibiotics for resistant bacteria	N	118	42	22	18	82.5	129.920	0.000
	%	59	21	11	9			
Once your child develops fever, you should give him/her antibiotic regardless the cause	N	102	60	24	14	81.25	95.520	0.000
	%	51	30	12	7			
Since upper respiratory tract infections such as flu, common cold, ear infections and sore throat are usually of a viral cause, antibiotics should not be used to cure them	N	84	54	42	20	75.25	42.720	0.000
	%	42	27	21	10			

Table (2) shows the satisfaction level Parental knowledge regarding antibiotic use in children with Upper Respiratory Tract Infections during COVID-19 Pandemic. Our study regarding Antibiotics can be used for any feverish child the majority of our participant Strongly agree were (53.2%) while Strongly agree were(45.0%) flowed by agree were(22.0%) while % of agreement(73.5%) were a significantly associated were $P=0.000$ and X^2 (44.640). Regarding the Children with flu like symptoms get better faster when antibiotics are used the majority of our participant Strongly agree were (34.0%) while agree were(28.0%) were a significantly associated were $P=0.002$ and X^2 (14.400), while % of agreement were(70.0%), regarding Antibiotics do not have any side effects the majority of our participant disagree were (38.0%) while agree were(35.0%) were a significantly associated were $P= 0.000$ and X^2 (47.520), while % of agreement

were(66.25%) . Regarding the Inappropriate use of antibiotics reduces their efficacy and drives bacterial resistance majority of our participant Strongly agree were (49.0%) while agree were(41.0%) were a significantly associated were $P= 0.000$ and X^2 (130.560), while % of agreement were(83.5%). Regarding the Scientists can produce new antibiotics for resistant bacteria majority of our participant Strongly agree were (59.0%) while agree were(21.0%) were a significantly associated were $P= 0.001$ and X^2 (129.600), while % of agreement were(82.5%), regarding Once your child develops fever, you should give him/her antibiotic regardless the cause the majority of our participant Strongly agree were (51.0%) while agree were(30.0%) were a significantly associated were $P= 0.001$ and X^2 (95.520), while % of agreement were(81.25%) . regarding Since upper respiratory tract infections such as flu, common cold, ear infections and sore throat are usually of a viral cause, antibiotics should not be used to cure them majority of our participant Strongly agree were (42.0%) while agree were(27.0%) were a significantly associated were $P= 0.000$ and X^2 (42.720), while % of agreement were(75.25%) .

Table 3 . Distribution of demographic characteristics with knowledge/attitude/practice statements on COVID-19 .

	Correct		Incorrect		Chi-square	
	No	%	No	%	X^2	P-value
COVID-19 is caused by a virus.	96	48	104	52	0.320	0.572
COVID-19 in children causes cold or flu symptoms.	118	59	82	41	6.480	0.011
Antibiotics are always needed for my child's COVID-19.	132	66	68	34	20.480	0.000
COVID-19 is caused by a virus.	116	58	84	42	5.120	0.024
My child will be sick for a longer time if it doesn't get treated with antibiotics for its cold or flu symptoms.	98	49	102	51	0.080	0.777

How often your Pediatrician did recommends antibiotics for your child's cold or flu symptoms by phone during COVID-19 pandemic?	134	67	66	33	23.120	0.000
I am more satisfied if my pediatrician assures me that my child doesn't need antibiotics for its cold or flu symptoms.	106	53	94	47	0.720	0.396

Table (3) shows the demographic characteristics with knowledge/attitude/practice statements on COVID-19 Pandemic, regarding COVID-19 is caused by a virus the majority of participant Incorrect answer were (52.0%) while Correct answer were(48.0%) while no significantly associated were $P=0.572$ and X^2 (0.320), regarding COVID-19 in children causes cold or flu symptoms the majority of participant correct answer were (59.0%) while Incorrect answer were(41.0%) while a significantly associated were $P=0.011$ and X^2 (6.480), regarding Antibiotics are always needed for my child's COVID-19 the majority of participant correct answer were (66.0%) while Incorrect answer were(34.0%) while a significantly associated were $P=0.00$ and X^2 (20.480), regarding COVID-19 is caused by a virus the majority of participant correct answer were (58.0%) while Incorrect answer were(42.0%) while a significantly associated were $P=0.024$ and X^2 (5.120), regarding My child will be sick for a longer time if it doesn't get treated with antibiotics for its cold or flu symptoms the majority of participant Incorrect answer were (51.0%) while Correct answer were(49.0%) while no significantly associated were $P=0.777$ and X^2 (0.080). Regarding COVID-19 is caused by a virus the majority of participant Incorrect answer were (52.0%) while Correct answer were(48.0%) while no significantly associated were $P=0.572$ and X^2 (0.320). Regarding how often your Pediatrician did recommends antibiotics for your child's cold or flu symptoms by phone during COVID-19 pandemic? The majority of participant correct answer were (67.0%) while Incorrect answer were(33.0%) while a significantly associated were $P=0.000$ and X^2 (23.120), regarding I am more satisfied if my pediatrician assures me that my child doesn't need antibiotics for its cold or flu symptoms the majority of participant correct answer were (53.0%) while Incorrect answer were(47.0%) while no significantly associated were $P=0.396$ and X^2 (0.720).

Table 4 . Distribution of participant's knowledge level regarding antibiotic use during COVID-19 Pandemic .

Knowledge		
	N	%
Weak	98	49
Average	74	37
High	28	14
Total	200	100

This table 4 shows that the majority of participants (49.0%) have a weak knowledge while averages were (37.0%) but high were (14.0%) the total were (100.0%)

Figure (1) Distribution of participant's knowledge level regarding antibiotic use during COVID-19 Pandemic

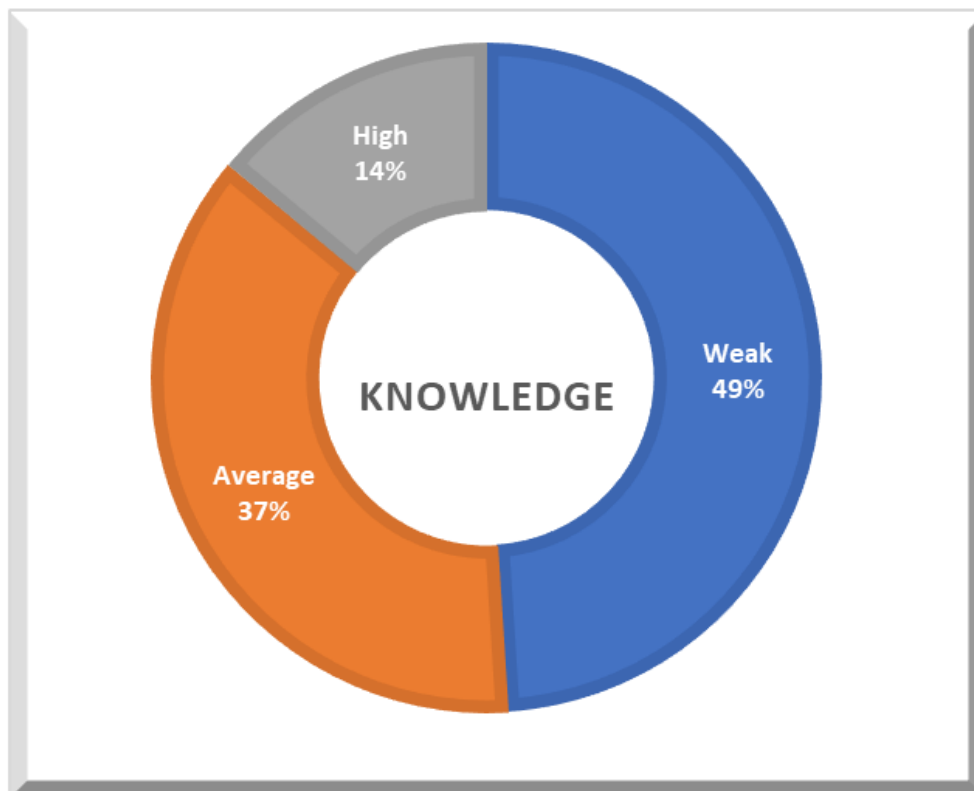
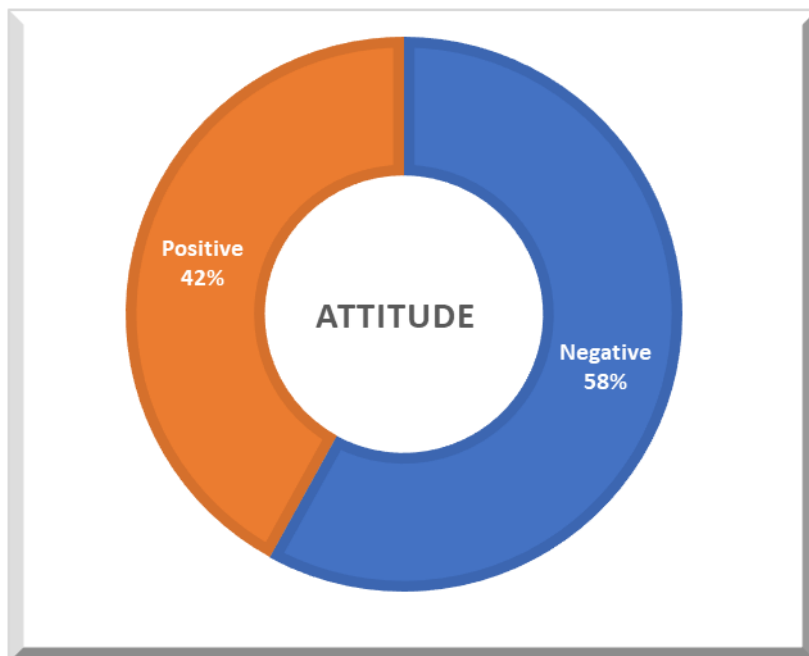


Table 5: Distribution of participant's Attitude regarding antibiotic use during COVID-19 Pandemic

Attitude		
	N	%
Negative	116	58
Positive	84	42
Total	200	100

This table 5 shows regarding participant's Attitude regarding antibiotic use during COVID-19 Pandemic the majority of participants negative attitude were (58.0%) while positive attitude were (42.0%) the total were (100.0%).

Figure (2) Distribution of participant's Attitude regarding antibiotic use during COVID-19 Pandemic



Discussion:

This is the first study on Parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam cite.

The response rate was 100%, which is rather satisfactory, especially taking into account the COVID-19 strict restrictions during visits in primary health care. The current study aimed to assessment parental Knowledge, Attitude, and Practices on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic in Dammam cite at Saudi Arabia 2022. The issue of the current study is novel in the Dammam cite population. It is considered a part of social science that often lags behind.

According to the results of this study, show regarding the age majority of the study groups were in the age 51-60 (35.0%) years were (30.0%), regarding the sex many of the respondents were female (57.0 %), regarding the education status, the majority of the respondents had Secondary school were (38.0%) , regarding the Chronic diseases, the majority of the respondents answer Yes were (79.0%), regarding the Family income, the majority of the respondents middle were (48.0%), regarding the Access to the healthcare system, the majority of the respondents good were (38.0%). (See table 1)

parents have a Strongly agree in level of knowledge statements on COVID-19, knowledge on antibiotic use for Upper Respiratory Tract Infections during COVID-19 Pandemic, Antibiotics can be used for any feverish child, Children with flu like symptoms get better faster when antibiotics are used, Antibiotics do not have any side effects, Inappropriate use of antibiotics reduces their efficacy and drives bacterial resistance, Scientists can produce new antibiotics for resistant bacteria, Once your child develops fever, you should give him/her antibiotic regardless the cause, Since upper respiratory tract infections such as flu, common cold, ear infections and sore throat are usually of a viral cause, antibiotics should not be used to cure them, however some incorrect perceptions have been revealed. (See table2)

Sestini et al.(2021)(27) identified media (e.g., television) as the main source of such information about use or misuse of antibiotics, despite the fact that similar KAP studies reported pediatrician's as the preferred source of information (28)

According to the results of this study, parents have with Correct knowledge statements on COVID-19. shows regarding COVID-19 is caused by a virus the majority of participant Incorrect answer were (52.0%), regarding COVID-19 in children causes cold or flu symptoms the majority of participant correct answer were (59.0%), regarding Antibiotics are always needed for my child's COVID-19 the majority of participant correct answer were (66.0%), regarding COVID-19 is caused by a virus the majority of participant correct answer were (58.0%), regarding My child will be sick for a longer time if it doesn't get treated with antibiotics for its cold or flu symptoms the majority of participant Incorrect answer were (51.0%), Regarding COVID-19 is caused by a virus the majority of participant Incorrect answer were (52.0%). Regarding how often your Pediatrician did

recommends antibiotics for your child's cold or flu symptoms by phone during COVID-19 pandemic? The majority of participant correct answer were (67.0%), regarding I am more satisfied if my pediatrician assures me that my child doesn't need antibiotics for its cold or flu symptoms the majority of participant correct answer were (53.0%), (See table 3)

in contrast to parents from a similar study from Northern Ethiopia who scored lower percentages of correct answers (31.4%) (29). In the latter study, 30% of the responders believed incorrectly that antibiotics were needed for viral infections, and 20.6% declared the majority of parents in correctly answered that most Upper Respiratory Tract Infections during COVID-19 Pandemic are viral in origin, in contrast to parents from a similar study from Northern Ethiopia who scored lower percentages of correct answers (31.4%) (30), in the latter study, 30% of the responders believed incorrectly that antibiotics were needed for viral infections, and 20.6% declared to be uncertain. Of note, this percentage is even smaller than other studies in China and Pakistan (79% and 83%, respectively) [32,33]. Almost 70% of parents were aware that common cold and flu need only supportive care, although 26.9% falsely believed that antibiotic use may protect from complications while 26.9% declared uncertain, which are similar percentages to those previously reported (23–29)

The results of this study regarding parents' Knowledge on Antibiotic Use for Children Upper Respiratory Tract Infections during COVID-19 Pandemic, shows that the majority of participants (49.0%) have a weak knowledge while averages were (37.0%) but high were (14.0%) the total were (100.0%). The results of this study regarding parents' attitudes and practices towards antibiotic use for children's Upper Respiratory Tract Infections during COVID-19 Pandemic are of great interest. Parents do not seek antibiotics as of them do not insist on this practice, and are not more satisfied if this happens, shows regarding participant's Attitude regarding antibiotic use during COVID-19 Pandemic the majority of participants negative attitude were (58.0%) while positive attitude were (42.0%) the total were (100.0%).(See table 4,5)

Less than believed that their paediatrician prescribes antibiotics due to their insistence, which is less than Palestinian parents but more than the percentage of parents from Cyprus (20). Of note, only 8% of Australian parents asked their paediatrician for antibiotics (8%), whereas 82% of Chinese parents mentioned that they would not get displeased if their paediatrician rejected their demand for antibiotics (31). In general, parents expect physical examination and adequate consultation for the nature of the disease and the need for antibiotics (32). These findings emphasize the vital role of communication between parents and paediatricians.

Conclusion:

Educational interventions for both parents will reduce unnecessary antibiotic use and resistance. Strengthening and application of pharmacy regulations related to the over-the-counter sale of antibiotics is needed in community pharmacies. Despite the limitations of the present study, it has provided some interesting data regarding parents' knowledge, attitude, and practice towards antibiotic use in children with Upper Respiratory Tract Infections during COVID-19 Pandemic . It has highlighted the ambiguities among parents with regard to the appropriate use of antibiotics. Thus, the results obtained from this study will be a cornerstone for designing innovative awareness programs for Saudi Arabia . Furthermore, it adds more evidence to policy makers about the importance of implementation of national legislations regarding over the counter dispensing of antibiotics which will help to improve the utilization of antibiotics and to decrease antimicrobial resistance.

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