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# Parent's Satisfaction Level without Antibiotic Prescription in Children with Clinical Diagnosis of Viral URTI

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## ABSTRACT

**Objective:** To assess parent satisfaction levels when healthcare providers do not prescribe antibiotics for children with clinical diagnoses of viral upper respiratory tract infection (URTI).

**Methodology:** 200 children having ages between 6 months to 12 years, clinically diagnosed, as viral upper respiratory tract infections (based on clinical sign and symptoms) without respiratory distress signs were included. Structured questionnaire included items related to parent's demographic information, their understanding of URTIs, their expectations regarding antibiotic prescriptions and their satisfaction levels with the healthcare provider's decision. A medical officer conducted face-to-face interviews of parents or guardian after their child's diagnosis and consultation with a Consultant Pediatrician, in a friendly atmosphere.

**Results:** The average age of the children included in the study was 5.12 ± 2.93 years. There were 124 males (62.0%) and 76 females (38.0%). 18 participants (9.0%) reported being highly unsatisfied with the healthcare provider's decision not to prescribe antibiotics for their children's viral URTI. 152 (76.0%), expressed being unsatisfied, w\hile 30 participants (15.0%) were satisfied. The majority of participants, 192 (96.0%), believed that antibiotics could help in the treatment of viral URTIs. Only a small percentage, 8 (4.0%), held the correct belief that antibiotics do not help in viral URTI.

**Conclusion:** Majority of parents expressed dissatisfaction with the healthcare provider's decision not to prescribe antibiotics for their children's viral URTIs.

**Key words:** Viral Upper respiratory tract infection, Antibiotics, Parental satisfaction

Authors' Contribution:
*[1,2]Conception; Literature research; manuscript design and drafting; [3,4]Critical analysis and manuscript review; [5,6]Data analysis; Manuscript Editing.*

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## Introduction

Upper respiratory tract infection (URTI) is a common medical condition characterized by the inflammation and infection of the upper respiratory system, which includes the nose, throat, sinuses, and sometimes the larynx. The overwhelming majority of upper respiratory infections (URTIs) originate from viral sources.[1,2] Upper respiratory tract infection (URTI) stands as the most prevalent infection among children, manifesting with an average of six to eight URTI occurrences annually during the preschool years. URTIs result in a higher frequency of healthcare provider visits and more missed days from daycare, school, and work than any other illnesses. In young children, URTI symptoms encompass nasal congestion, general restlessness, feeding difficulties, queasiness, and occasionally, a fever.[3] Older children experience milder, predominantly localized symptoms, and any fever that may be present is typically of low intensity. The common cold is a self-limiting viral infection for which there is no definitive curative treatment.[3] Across the world, antibiotics are the most commonly provided and excessively utilized pharmaceuticals for the treatment of upper respiratory tract infections (URTIs). This global phenomenon underscores the widespread tendency to prescribe antibiotics for URTIs, often when they may not be necessary, and the consequent misuse or overuse of these medications in addressing such infections.[4,5]

The reasons behind the excessive use of antimicrobial drugs in children are multifaceted. These include the convenient availability of antibiotics for self-administration and over prescription by the health practitioners due to diagnostic uncertainties or on parental requests.[6,7] This parental inclination is primarily encouraged by a lack of information and misunderstanding of the disease.[6,8] It has been studied that parent's knowledge plays a pivotal role in their decision to use antibiotics and parental satisfaction level can be improved when physicians offer them suitable explanations and therapeutic plans.[9-11] All of the factors mentioned above contribute to unnecessary prescription of antibiotics in Pakistan as well. This study was conducted to evaluate the satisfaction level of parents when antibiotics are not prescribed for children diagnosed with clinical symptoms of (URTIs).

## Methodology

This descriptive cross-sectional study was done at Pediatric Department of a Secondary Care Hospital in Bahawalnagar. Study was done over a period of six months from 1st December 2022 to 31 May 2023. All the children having ages between 6 months to 12 years diagnosed as viral upper respiratory tract infections (based on clinical sign and symptoms) without signs of respiratory distress were included in the study. All the children already under antibiotic treatment, clinical signs and symptoms of bacterial infection like: markedly inflamed throat, enlarged and inflamed tonsils, enlarged tender lymph nodes, CBC and CRP suggestive of bacterial infection, children with any co-existing infection and respiratory distress were excluded.

Structured questionnaire was developed for parent interviews. The questionnaire was included items related to parent demographic information, their understanding of URTIs, their expectations regarding antibiotic prescriptions, and their satisfaction levels with the healthcare provider's decision. Trained interviewers conducted face-to-face interviews with parents or guardians after their child's diagnosis and consultation with a healthcare provider. Interviews were conducted in a friendly atmosphere and comfortable setting to encourage open communication. Informed consent was obtained from all participating parents or guardians, emphasizing the voluntary nature of their participation.

Parents were counselled that their all-collected information will be kept confidential and anonymized to ensure participant privacy. All the data was entered and analyzed by using SPSS version 26.

The mean and standard deviation (SD) were calculated for quantitative variables like age, temperature, Hemoglobin and TLC levels while frequencies and percentages were considered for qualitative variables like gender, level of satisfaction and belief about antibiotics use in URTI. P value $< 0.05$ was considered as statistically significant.

## Results

The average age of the children included in the study was 5.12 ± 2.93 years. The overall average temperature was 98.20 ± 3.34°F, average haemoglobin level was 11.34 ± 1.97 g/dl. The mean TLC (Total Leukocyte Count) was 13.59 ± 50.80 per microliters, the mean lymphocyte count was 54.22 ± 15.26 per microliters, and the mean neutrophil count was 37.57 ± 14.55 per microliters. Regarding the gender distribution of the children, there were 124 males (62.0%) and 76 females (38.0%), indicating a slightly higher proportion of male participants. The majority of respondents were housewives (83.0%), followed by individuals working in factory jobs (14.0%). Other occupations such as business, government job, staff nurse, and teachers were less common, each making up a small percentage of the sample. 20.0% of the participants had raised CRP levels, while the majority, 80.0%, had normal CRP levels as depicted in Table I.

**Table I: Demographic and clinical characteristics of study subjects (n=200)**

| Demographic and clinical and Laboratory variables | | Statistics | |
|---|---|---|---|
| Average age of children (years) | | 5.12+2.93 | |
| Overall average temperature ($^0$F) | | 98.20+3.34 | |
| Average haemoglobin level (g/dl) | | 11.34+1.97 | |
| Mean TLC count (per microliters) | | 09.59 + 2.80 | |
| Mean lymphocytes count (per microliters) | | 54.22 + 15.26 | |
| Mean neutrophil count (per microliters) | | 37.57 + 14.55 | |
| **Gender of children** | Males | 124 | 62.0% |
| | Females | 76 | 38.0% |
| **Occupation of parents of caretaker** | Business | 1 | 0.5% |
| | House wife | 166 | 83.0% |
| | Govt. Job | 29 | 15.5% |
| | Staff nurse | 1 | 0.5% |
| | Teachers | 3 | 1.5% |
| **CRP** | Raised | 40 | 20.0% |
| | Normal | 160 | 80.0% |

Regarding the level of satisfaction, 18 participants (9.0%) reported being highly unsatisfied with the healthcare provider's decision not to prescribe antibiotics for their children's viral URTI. A larger proportion of respondents, 152 (76.0%), expressed being unsatisfied, while 30 participants (15.0%) indicated that they were satisfied with the decision.

**Table II: Parental satisfaction and belief in use of antibiotics (n=200)**

| Level of satisfaction | | | Statistics | |
|---|---|---|---|---|
| **Level of satisfaction** | | Highly unsatisfied | 18 | 9.0% |
| | | Unsatisfied | 152 | 76.0% |
| | | Satisfied | 30 | 15.0% |
| **Parental belief about antibiotics** | Does antibiotic help in viral URTI? | Yes | 192 | 96.0% |
| | | No | 8 | 4.0% |
| | Do you think URTI is self-limiting? | Yes | 10 | 5.0% |
| | | No | 190 | 95.0% |

**Table III: Parental satisfactions according to their educational level (n=200)**

| Educational status | Level of satisfaction: Highly satisfied | Unsatisfied | Satisfied | Total | P value |
|---|---|---|---|---|---|
| No education | 4 | 29 | 7 | 40 | 0.794 |
| | 2.0% | 14.5% | 3.5% | 20.0% | |
| Primary | 2 | 20 | 2 | 24 | |
| | 1.0% | 10.0% | 1.0% | 12.0% | |
| Metric | 8 | 68 | 10 | 86 | |
| | 4.0% | 34.0% | 5.0% | 43.0% | |
| Higher secondary | 2 | 12 | 5 | 19 | |
| | 1.0% | 6.0% | 2.5% | 9.5% | |
| Graduation | 2 | 23 | 6 | 31 | |
| | 1.0% | 11.5% | 3.0% | 15.5% | |
| Total | 18 | 152 | 30 | 200 | |
| | 9.0% | 76.0% | 15.0% | 100.0 % | |

When it comes to parental beliefs about antibiotics and viral URTIs, the majority of participants, 192 (96.0%), believed that antibiotics could help in the treatment of viral URTIs. Only a small percentage, 8 (4.0%), held the correct belief that antibiotics do not help in viral URTIs. Additionally, when asked whether they thought URTIs were self-limiting, meaning they resolve on their own without antibiotic treatment, 190 participants (95.0%) answered negatively, while only 10 (5.0%) recognized that URTIs are typically self-limiting conditions. Table II. Parental satisfaction was statistically insignificant according to their education (p=0.794). Table III.

## Discussion

Upper respiratory tract infections, primarily caused by viral infections, are the primary driver of childhood morbidity. Furthermore, there is a notable prevalence of excessive antibiotic usage in these instances. present study has been done to assess parental satisfaction when antibiotics are not recommended for children diagnosed with clinical symptoms of Upper Respiratory Tract Infections (URTIs), aiming to delve into the current state of knowledge in our country. In this study total 200 children were enrolled, with an average age of 5.12 ± 2.93 years. There were 124 males (62.0%) and 76 females (38.0%). In the comparison of this study Ren X et al[12] reported that the average age of children was 2.18±1.33 years, males were 35 (56.45%) and females were 27 (43.55%). In another study by REHMAN M et al[13] reported that approximately two-thirds (66.7%) of the individuals were male, while about one-third (33.3%) were female, with overall an average age of the cases was 08.44 years, with a standard deviation of 7.65 years.

In this study the majority were housewives (83.0%), followed by individuals working in factory jobs (14.0%). Other occupations such as business, government job, staff nurse, and teachers were less common, each making up a small percentage of the sample. In the comparison of this study Zeru T et al[4] reported that the 36.6% mothers were housewife, 22.1% had government job and 41.3% mothers were private employee. Maternal house wife ratio is higher in Pakistan may due to consider factors that may contribute to this difference, such as lower education, illiteracy, cultural norms, societal expectations, economic conditions, and government policies. In this study 20.0% of the participants had raised CRP levels, while the majority, 80.0%, had normal CRP levels. Consistently Kwiyolecha E et al[15] children infected with viral pathogens exhibited a lymphocyte count shift to the right, along with heightened sensitivity at 78.0%. Neutrophil levels showed a left deviation or a slight increase, and C-reactive protein (CRP) levels did not exceed 10 mg/dl. These observations hold significance and have the potential to predict such infections in settings with limited resources. They can aid in decision-making regarding patient management, potentially leading to a reduction in unnecessary antibiotic prescriptions.[15]

In this study regarding the level of satisfaction, 18 individuals (9.0%), reported being highly unsatisfied, a larger proportion, 152 participants (76.0%), expressed dissatisfaction, meanwhile, 30 participants (15.0%) indicated satisfaction with the decision. Furthermore, the majority of participants, 192 individuals (96.0%), believed that antibiotics could help in treating viral URTIs. In the comparison of this study Okide CC et al[16] found parents from both hospitals commonly engaged in self-medication practices, with an overwhelming majority of 88.6%. They also admitted to suboptimal behaviours concerning antibiotics, including using leftover antibiotics. Additionally, a significant majority, accounting for 85% of the parents, reported receiving antibiotics only after requesting them from their physicians.[16] Alsuhaibani MA et al[17] also observed that the majority of participants possessed educational backgrounds, but their attitudes and practices were lacking. While parents expressed concerns about the availability of over-the- counter antibiotics, they frequently requested them.[17] Our findings were also supported by Saleh Faidah H et al[10] as a significant portion of Saudi parents, constituting 53%, anticipate paediatricians to recommend antimicrobial medications for their children when experiencing symptoms such as fever, sore throat, cough or nasal discharge. Inconsistently Alzaid A et al[18] observed that the many of the participants demonstrated a high level of knowledge regarding antibiotic use. However, the majority among them consistently used antibiotics without a doctor's prescription.[18] Although Al Hashmi AS et al[19] found over 38% of parents never requested antibiotics from their paediatricians, and only 6% expressed appreciation to their paediatricians for refraining from prescribing antibiotics. In Pakistan and other developing countries, there is a prevalent issue of antibiotic misuse when it comes to treating Upper Respiratory Tract Infections (URTI) in children. Parents often mishandle antibiotics by using them inappropriately or not completing prescribed courses. Additionally, there is a common expectation among parents that physicians will recommend antibiotics for URTIs, even when they may not be necessary. This combination of antibiotic misuse and a strong desire for antibiotic prescriptions underscores the need for increased awareness and education regarding responsible antibiotic usage in these regions. It also highlights the importance of healthcare providers in effectively communicating the appropriate treatment protocols for URTIs in children. Strategies need to be meticulously developed to address parental satisfaction without antibiotic prescriptions for children clinically diagnosed with viral Upper Respiratory Tract Infections (URTI).

## Conclusion

In conclusion, the findings from this study on parental satisfaction and beliefs regarding antibiotic prescriptions for children diagnosed with viral Upper Respiratory Tract Infections (URTI) revealed important insights. Majority of parents expressed dissatisfaction with the healthcare provider's decision not to prescribe antibiotics for their children's viral URTIs. Mostly parents believing that the antibiotics could aid in the treatment of viral URTIs and only 4.0%, correctly understood that antibiotics are not effective in managing viral URTIs. These findings underscore the need for enhanced patient and caregiver education on the appropriate use of antibiotics and the self-limiting nature of viral URTIs.

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