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Upper Respiratory Infections in Children: A Survey of Mothers in The City of Laayoune

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ABSTRACT

Introduction: Upper respiratory infections in children continue to be a common reason for pediatric consultations. Mothers often hold misconceptions about these infections, and their knowledge regarding their management remains limited.

Materials and Methods: In this study, we evaluated the knowledge and practices of 180 mothers with children under the age of 15. Data were collected through interviews conducted at the emergency department of Moulay Ben Mehdi Hospital in Laayoune and at other local health centers.

Results: Approximately 61% of the interviewed mothers had an educational level below high school, and 13% were illiterate. Most participants (63%) were housewives, and 54% had 1 to 2 children. Almost all mothers (99%) reported prior awareness of upper respiratory infections, with radio and television being the main sources of information (52%). The majority (96%) believed that these infections are more prevalent in winter. Around 39% identified viruses as the cause. Fever was reported as the main clinical sign by 99% of mothers. Regarding management practices, 29% recommended traditional remedies, while 24% preferred self-medication, including the use of paracetamol (99%), antibiotics (78%), and non-steroidal anti-inflammatory drugs (64%).

Conclusion: This survey highlights significant gaps in mothers' knowledge and management of upper respiratory infections in children, particularly among those with a lower educational level.

Keywords: Upper Respiratory Infections; Maternal Knowledge; Self-Medication; Pediatric Health

Introduction

Upper respiratory tract infections (URTIs) are a frequent reason for consultation in general practice, both in outpatient settings and in the emergency department, particularly during the winter months [1]. The vast majority of these infections are viral in origin, caused by more than 200 different viruses, while less than 10% are bacterial. However, approximately 20 to 30% of URTI episodes remain of unknown etiology and are presumed to be viral [2]. Routine clinical practice highlights certain maternal behaviors that can lead to excessive and inappropriate antibiotic prescribing, thereby promoting the emergence of bacterial resistance. [3] Globally, the incidence of upper respiratory tract infections reached 17.2 billion cases in 2019 [4]. However, in many countries, including Morocco, few studies have examined mothers' knowledge and attitudes towards upper respiratory infections in their children. Research conducted elsewhere in the world has revealed insufficient knowledge and a tendency to overuse antibiotics [4,5,6]. In Morocco, to our knowledge, no study has yet been conducted to assess mothers' knowledge and behaviors on this subject. This study is therefore intended to be the first of its kind in the country, aiming to fill this crucial information gap to improve the management of pediatric upper respiratory tract infections.

Materials and Methods

This prospective, cross-sectional, and analytical study was conducted to assess mothers' knowledge and attitudes regarding upper respiratory tract infections in their children. The survey was carried out over an eight-month period in the Emergency Department of the

Laayoune Provincial Hospital Center and in health centers throughout the city of Laayoune. Participants were mothers of children under 15 years of age who presented to the emergency department or health centers for any reason. After providing oral consent, they were randomly selected to participate in the study. A structured questionnaire was used to collect data, comprising three sections: the epidemiological profile of the children, the epidemiological profile of the mothers, and finally, questions about their knowledge and attitudes regarding upper respiratory infections. The questions were partly closed and partly open-ended, and were translated orally into colloquial Arabic to ensure comprehension. The data was entered using Microsoft Excel 2019 software, and the results are presented as averages and percentages.

Results

The study included 180 mothers, all of whom completed the questionnaire, resulting in a 100% response rate. The children's average age was 5.73 years, with the majority (over 50%) in the 5-10 age group. Girls were more numerous, representing 60% of the sample (sex ratio). Regarding breastfeeding, 61% of the infants had been breastfed. As for childcare arrangements, 70% of the children were cared for by their parents. Furthermore, 42% of the children were the firstborn in their families. All the children were enrolled in school, although 23% were still in childcare settings such as daycare. Regarding medical history, 64% of the children had no underlying health conditions, and 15% had experienced viral bronchiolitis. Only 8% of the children had a history of surgery, primarily appendectomies and tonsillectomies. Furthermore, all children in the sample had a complete vaccination record, in accordance with the National Immunization Program (Table 1).

Table 1: Distribition by Education Level.

Child's Education Level	Number of Children	Percentage
Preschool	32	18%
Primary School	86	48%
Middle School	19	11%
Not Enrolled	43	23%
Total	180	100%

The average age of the mothers was 35, with a predominance in the 25-45 age group, representing 65% of respondents (Figure 1). Males were significantly more numerous than females (Figure 2). The interview revealed breastfeeding in 61% of cases (Figure 3) with a notion of parental care in 70% (Figure 4) as well as the presence of a history in 36% (bronchiolitis, asthma, poisoning, celiac disease, intoxication, tonsillitis) (figure 5) Regarding education level, nearly 61% of the mothers had less than a high school diploma, and 13% were illiterate. (Figure 6) In terms of mothers' employment, 63% were homemakers, and 78% were married. On average, more than half of the mothers (54%) had 1 to 2 children. (Figure 7) Almost all mothers (99%) had heard of upper respiratory infections. The most frequently cited sources of information were television and radio (52%), followed by medical history (30%). Half of the mothers (51%) felt they were sufficiently informed about these infections. Most mothers (96%) indicated that these infections occurred mainly in winter. Regarding the contagiousness of upper respiratory infections, 69% of mothers considered them contagious. The most frequently cited mode of transmission was airborne or coughing (74%), followed by saliva and nasal secretions (63%). Regarding the causative agents, 39.4% of mothers believed the infections were due to viruses, while 38% attributed them to bacteria. The most frequently reported symptoms were fever (99%), nasal congestion (98%), and cough (90%).

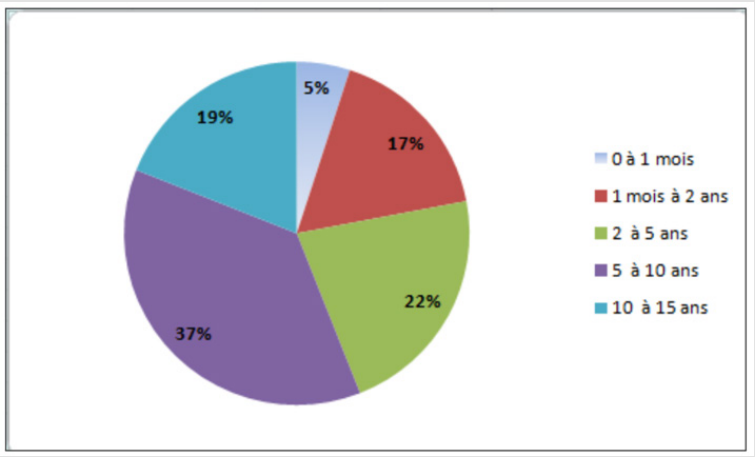

Figure 1: Distribution of children according to age.

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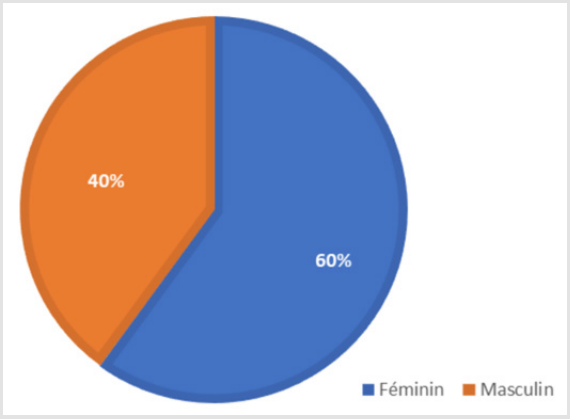

Figure 2: Sex distribution.

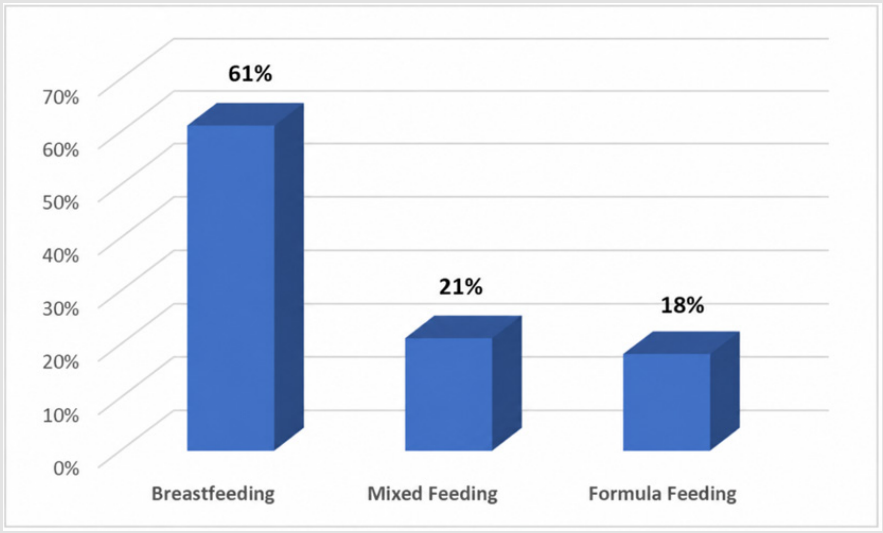

Figure 3: Distribution by Feeding Method.

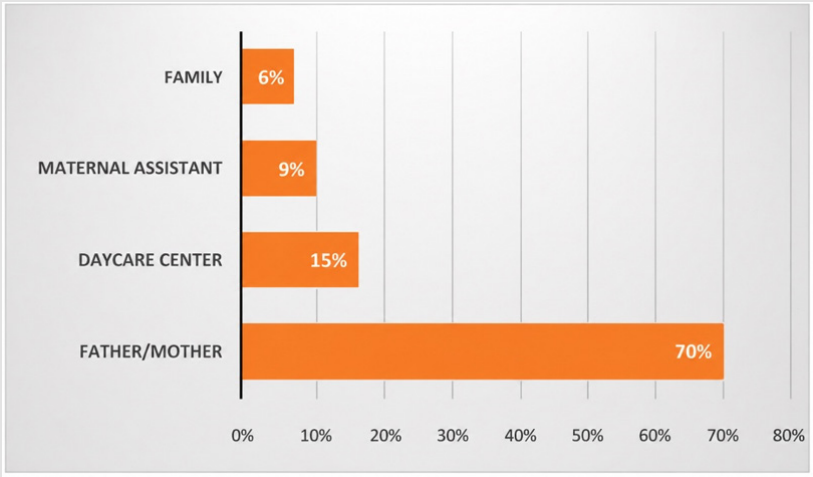

Figure 4: Distribution of Childcare Arrangements.

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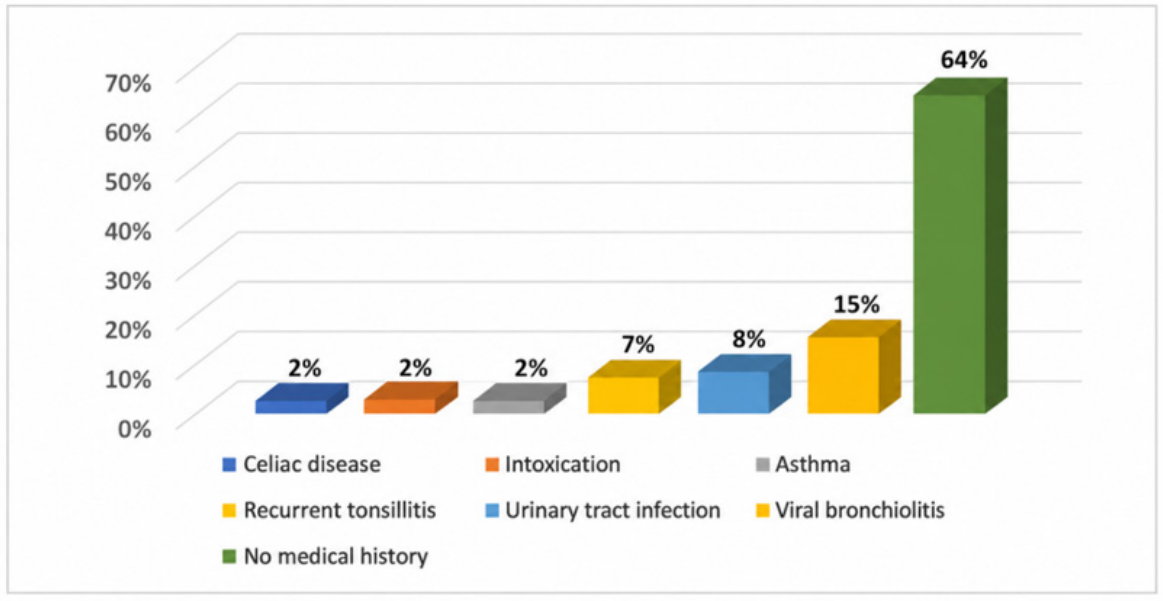

Figure 5: Distribution by Medical History.

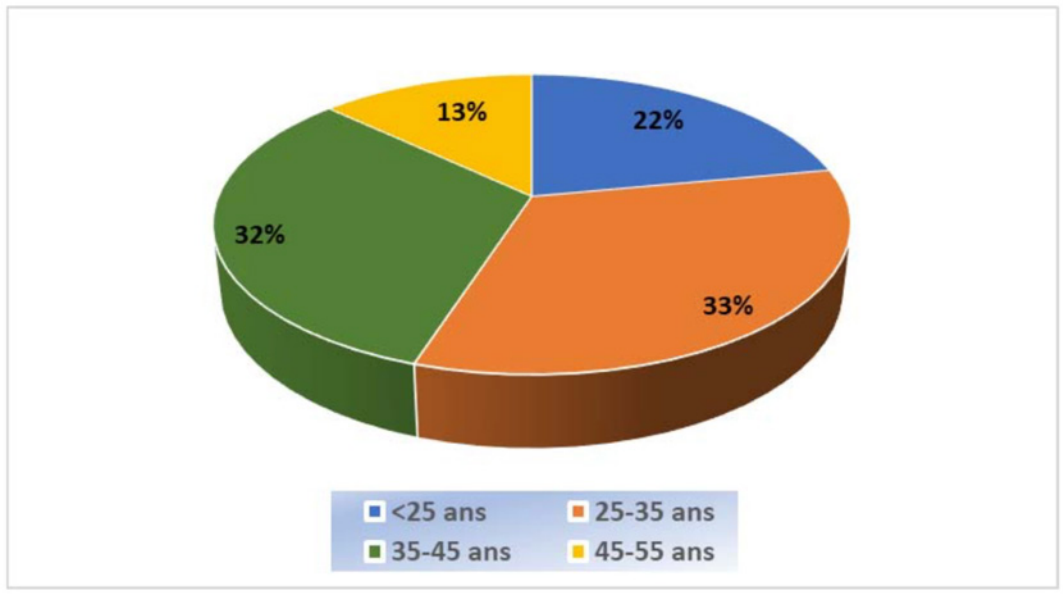

Figure 6: Distribution of mothers by age group.

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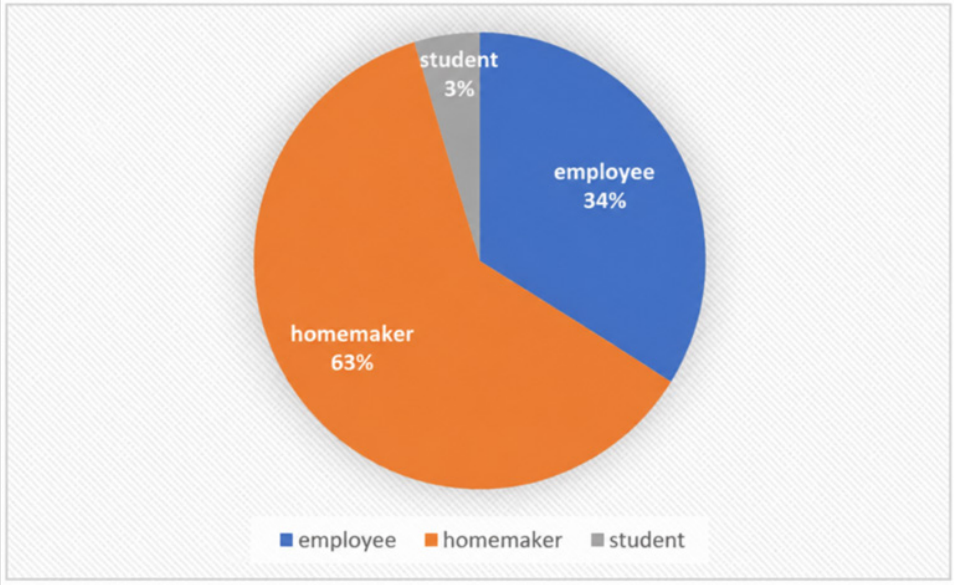

Figure 7: Distribution of mother's professions.

At the onset of symptoms, almost a third of mothers (29%) resorted to traditional home remedies, while 24% preferred self-medication. Some (19%) also sought help from traditional healers. In cases of severe symptoms, 14% of mothers consulted a general practitioner, and 24% went directly to the pharmacist. To alleviate symptoms, mothers implemented various measures, including the use of traditional medicine (69%) and hygiene practices such as frequent handwashing (47%) and proper nose blowing. A large majority (97%) of mothers considered it important to keep the child well covered at night as a preventative measure against upper respiratory infections. Other recommended measures included ventilating rooms (86%) and avoiding secondhand smoke (83%). (Figure 8) Clinical signs requiring emergency consultation were dominated by fever unresponsive to paracetamol (94%) and general malaise (90%), particularly in cases of rhinopharyngitis, tonsillitis, otitis, and sinusitis. Mothers indicated that symptoms such as purulent otorrhea (100%), severe dehydration (89%), and respiratory distress (86%) were key indicators of infection severity. In cases of tonsillitis, 55% of mothers reported 2 to 3 episodes per year. Treatments used included analgesics (paracetamol), antibiotics, non-steroidal anti-inflammatory drugs, and in some cases, honey as a remedy (Table 2). In terms of practice, mothers (53%) preferred to use traditional medicine to treat upper respiratory infections. Among the most commonly used traditional remedies were a recipe based on "camel hump fat + egg + milk" (37%), and a mixture of "lemon + honey" to treat tonsillitis (14%).

Table 2: Clinical Sings Observed by Mothers in Their Children.

Symptoms	Count	Percentage
Fever	178	99%
Nasal obstruction	176	98%
Cough	162	90%
Mucoid rhinorrhea	115	64%
Loss of appetite	102	57%
Night awakenings	95	53%
Vomiting	92	51%
Diarrhea	80	45%
Pharyngeal pain	80	44%
Odynophagia	65	36%
Respiratory discomfort	60	33%
Inflamed oropharynx	60	33%
Drowsiness	50	28%
Hoarse voice	45	25%
Painful cervical lymphadenopathy	45	25%
Behavioral changes in the child	40	22%
Irritability	40	22%
Dental pain	40	22%
Infraorbital pain	38	21%
Mucopurulent rhinorrhea	30	17%
Ear pain (otalgia)	30	17%
Ear discharge (Otorrhea)	29	16%
Congested tympanic membranes	25	14%
Conjunctivitis	20	11%
Eyelid edema	18	10%

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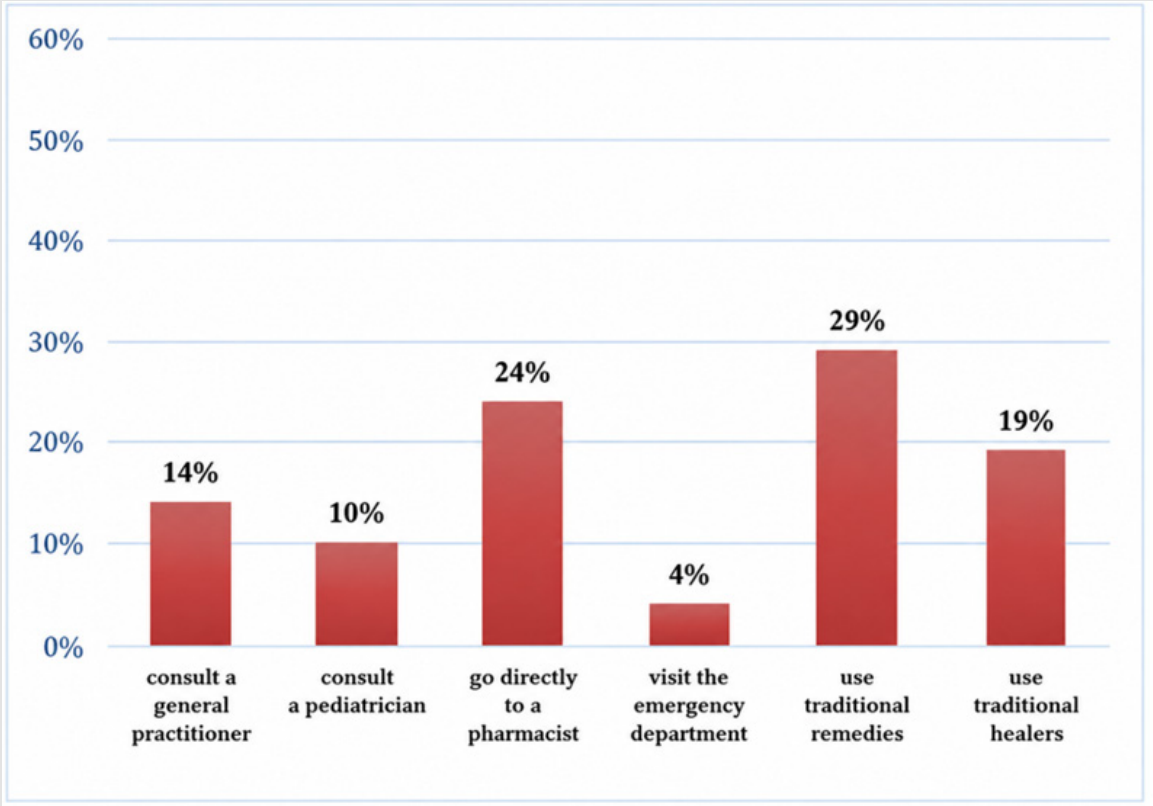

Figure 8: Initial Course of Action.

Discussion

Analysis of the results obtained in Laâyoune reveals a complex dynamic between traditional knowledge and conventional medicine, the implications of which extend beyond the local context. While 99% of the mothers in our study had prior knowledge of upper respiratory tract infections (URTIs), the persistence of gaps in knowledge regarding their management is a universal observation [1,2]. Indeed, this high level of awareness without in-depth understanding echoes the conclusions of Belongia, et al. [3] in the United States, who already noted that access to information did not guarantee an appropriate therapeutic approach. The etiological confusion observed in our survey, where 38% of mothers attributed URTIs to bacteria, is a major risk factor for antibiotic resistance. This figure should be considered in light of the work of Panagakou, et al. [4] in Greece, where a similar proportion of parents believed in the effectiveness of antibiotics against viruses, confirming that the lack of health education on the viral nature of respiratory infections is a global problem.

The management of specific illnesses, such as tonsillitis and rhinopharyngitis, underscores the importance of prevention campaigns. While our results show a recurrence of tonsillitis episodes in 55% of children, the study by Bouvet, et al. [7] in France demonstrates that educational interventions focused on the benign nature of rhinopharyngitis can reduce emergency room visits by 30%. In Laâyoune, the use of self-medication (24%) and the unjustified use of antibiotics (78%) during this self-medication is significantly higher than the averages observed by Alrafiaah, et al. [5] in Saudi Arabia. This disparity could be explained by easier access to medications in pharmacies or by a misperception of the severity of fever. On this point, the near unanimity of mothers (99%) identifying fever as a warning sign in Laâyoune agrees with the work of Lakraïmi [9] on the evolution of parental knowledge in the face of fever, although the therapeutic response (paracetamol at 99%) is sometimes disproportionate to the actual risk.

A striking feature of our study is the widespread use of traditional medicine (53%), including specific remedies such as camel hump fat. This trend, although less documented in European studies, aligns perfectly with Djeneba Camara's research in Mali [6], which highlights the importance of cultural perceptions in the choice of primary care. The use of natural products, perceived as less toxic, coexists here with modern medicine that is sometimes poorly understood. However, the recognition of signs of severity such as otorrhea (100%) or dehydration (89%) shows that mothers in Laâyoune possess a solid foundation of clinical awareness, comparable to the severity indicators described by Couloigner [14]. Finally, the issue of the environment, particularly passive smoking present in 48% of households despite

awareness of the risks (83%), highlights the limitations of simple information. As indicated in the Elsevier Masson [15] summaries, environmental exposure is a determining factor in the chronicity of ENT pathologies. Comparing our data with the literature, it appears that reducing respiratory morbidity in Laâyoune depends not only on improved access to care, but also on integrated communication. This communication, as recommended by Stagnara, et al. [16], should rely on popularization tools (radio, television) to clarify the ineffectiveness of antibiotics in viral upper respiratory tract infections (URTIs) while respecting safe cultural practices to foster an effective therapeutic alliance [17-22].

Conclusion

In conclusion, our results underscore the crucial importance of strengthening health education for mothers regarding upper respiratory infections in children, particularly concerning appropriate management, prevention, and early recognition of signs of severity. Improving care relies on a comprehensive and culturally appropriate approach, integrating traditional practices within a safe and professionally supervised environment. Furthermore, reducing exposure to secondhand smoke is a key preventive measure. Therefore, close collaboration between families and healthcare facilities is essential to optimize the quality of care and minimize preventable complications.

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