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Assessment of Caregiver'S Perception Towards Respiratory Diseases Therapy In Pediatric Department Of A Tertiary Care Teaching Hospital

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ABSTRACT

Respiratory diseases remain a major cause of morbidity and mortality in children especially among children less than five years old. To study the prescribing pattern and assess caregiver's perception about pediatric respiratory disease therapy by using questionnaires. A prospective observational study was carried out for a total of 225 cases of inpatients in pediatric department and caregivers were assessed regarding pediatric respiratory disease therapy by questionnaires. We observed that Majority of the pediatric patients were diagnosed with LRTI 95(42.2%), followed by ARI 60(26.7%), URTI 36(16.0%), Fever and cough 15(6.8%) Pneumonia 11(4.9%), Asthma 3(1.3%), Bronchiolitis and Chronic cough 02(0.8%). Most of the drugs prescribed were Bronchodilators (36.5%). Among Bronchodilators SABA 258(81.6%) were prescribed more in number in which salbutamol were prescribed more (77.5%). Majority of the antibiotics prescribed were Cephalosporin's (58.8%), and among Corticosteroid's Budesonide were prescribed more i.e. (26.32%). Most of the caregivers given formulation preference towards nebulization i.e. (61.4%). Almost (44.5%) of caregivers felt that usage of the nebulizers was easy. Out of 225 caregivers about 88% of the caregivers were satisfied with their child's treatment. Educational interventions must be implemented for health care professionals for more appropriate and cost effective prescribing. A separate parent education program also should be conducted to bring awareness regarding respiratory disease in parents/ caregivers. This will ensure rational use of drugs in pediatric Respiratory diseases and there by improve quality of life.

Keywords: Caregiver, LRTI, Pediatric, Respiratory disease, URTI.

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INTRODUCTION

Respiratory tract infections are frequent among children and are commonly treated with antibiotics. Despite of the effectiveness of antibiotics in the treatment of numerous bacterial infections, it is often used inappropriately.Their increasing inappropriate consumption leads to the development of bacterial resistant strains. Such resistance to antibiotics is likely to lead to reduction in the effectiveness of many antibiotics.[1]

With an increasing number of diseases treated with aerosolized therapy, it is paramount that attention be paid to factors that limit the effective use of these medications and devices in infants and young children.[2]

Inhalation therapy is the mainstay of treatment for many Pediatric pulmonary diseases. The inhalation route offers a faster onset of action and high in situ drug concentrations compared with systemic administration. Delivering aerosols to infants and children is a challenging task and cannot be thought of as a miniaturization of adult therapy, because children have anatomical, physiological, and behavioral differences to adults[3]. In recent years inhalation therapy has achieved ever increasing importance in maintaining respiratory function.[4]

Aerosol therapy allows rapid medication effects, reduces systemic side effects, and provides uniform results in comparable clinical presentations if preparation techniques and dosages are appropriate. Proper and successful administration of aerosol therapy to the infant or child requires a comprehensive amount of skill and knowledge on the part of the respiratory therapy practitioner[5]. Although healthcare providers advise and train their patients in the use of different aerosol delivery devices, real-life use differs from the training, and understanding the effects that this individual use has on drug delivery is important. Lack of child cooperation is a common scenario for aerosol delivery problems. Another factor is that information about the performance of delivery devices among different age ‘groups is usually unavailable. Inaccurate and incomplete prescribing of nebulizer bronchodilators can result in uncertainty and suboptimal treatment. A prospective audit has demonstrated major deficiencies in the prescribing and administration of nebulizer bronchodilators and it highlighted the need for a local protocol and continuing staff education [6].

Currently there is little awareness about respiratory diseases in most of the developing countries, including India. Keeping in mind the fact that more and more people are now suffering from this disease, this lack of awareness is unfortunate. The fact that parents and patients of respiratory diseases do not have adequate knowledge about disease, may lead to delays in instituting proper treatment and hence lead to a higher morbidity and mortality [7].

In this context we decided to carry out Pharmacoepidemiological Assessment Of Caregiver's Perception Towards Respiratory Diseases Therapy In Pediatric Department Of A Tertiary Care Teaching Hospital.

MATERIALS AND METHOD

A Prospective observational study was carried out in department of pediatrics, which is attached to 1000 bedded multi-specialty, Tertiary care teaching hospital at Raichur.

The study was conducted with expert guidance of the Clinical Pharmacy Professionals and Senior Pediatricians of the study department. For obtaining the clearance certificate, an application along with study protocol , which includes the proposed title, study site including various departments required, duration, inclusion and exclusion criteria, objective and a brief methodology about the work to be carried out was submitted to the Chairman of the Institutional Ethics Committee of Navodaya Medical Hospital and Research Centre . The study was approved by Committee by issuing ethical clearance certificate.

Inclusion criteria is Pediatric patients of age≤18 years of both genders and diagnosed with Respiratory diseases and admitted in IP of Pediatric department, Caregivers/ Parents whose children were diagnosed with Respiratory diseases and willing to participate in the study and Paediatric patients who were admitted in emergency department and visiting OPD, Parents not willing to participate in the study, Inadequately filled questionnaire were excluded from the study.

Data were collected on a pretested case record form which included information on patient characteristics, Pattern of respiratory diseases, Duration of stay, Lab investigations with special preference to PFT, Type of management, dose, duration, route of administration, categories of drugs and average number of drugs prescribed. Descriptive statistics was used to summarize the demographic characteristics, disease data and drug data of the patients. Frequencies and proportions / percentages were used to describe variables.

In order to assess the knowledge of respiratory diseases and parent's attitude and practice towards management of respiratory diseases in their children's. An interviewer administered questionnaire was formed in which both open and close ended questions were included. The open ended questions like their concern about inhalers, their formulation preference, side effects of medication prescribed etc. They were also asked close ended questions. No attempt was made to correct wrong answers or response until the completion of interview. Collected questionnaires were analyzed for accurate data. The questionnaires which contain missed information like responders demographics etc. were excluded.

RESULTS AND DISCUSSION

In the study population of 225 patients female children were found to be more (54.8%) than the male children (45.2%). Most of the pediatric patients who were diagnosed with respiratory diseases were children (49.8%), Infants and toddlers (48.9%), and Adolescents (1.3%). The duration of hospital stay was 5 days (36.4%), followed by 4 days(19.1%), 6days(16.9%), 7 days(11.1%), 3 days (8.9%), and>8days (4.5%) the least duration of the stay was 2 days in (3.1%) patients. Major complaints reported include cough and cold i.e., 220 (47.36%) followed by fever 163 (35.1%), hurried breathing39 (8.38%), others like swelling in both limbs, sputum production 23(4.94%), Difficulty in breathing and running nose 08(1.72%), Wheezing 03(0.6%), and nasal block 01(0.2%) same shown in **Figure 1.** Cough and cold were the main symptoms for the respiratory diseases which were supported by the results of the previous study conducted by **Roma KM et al.**

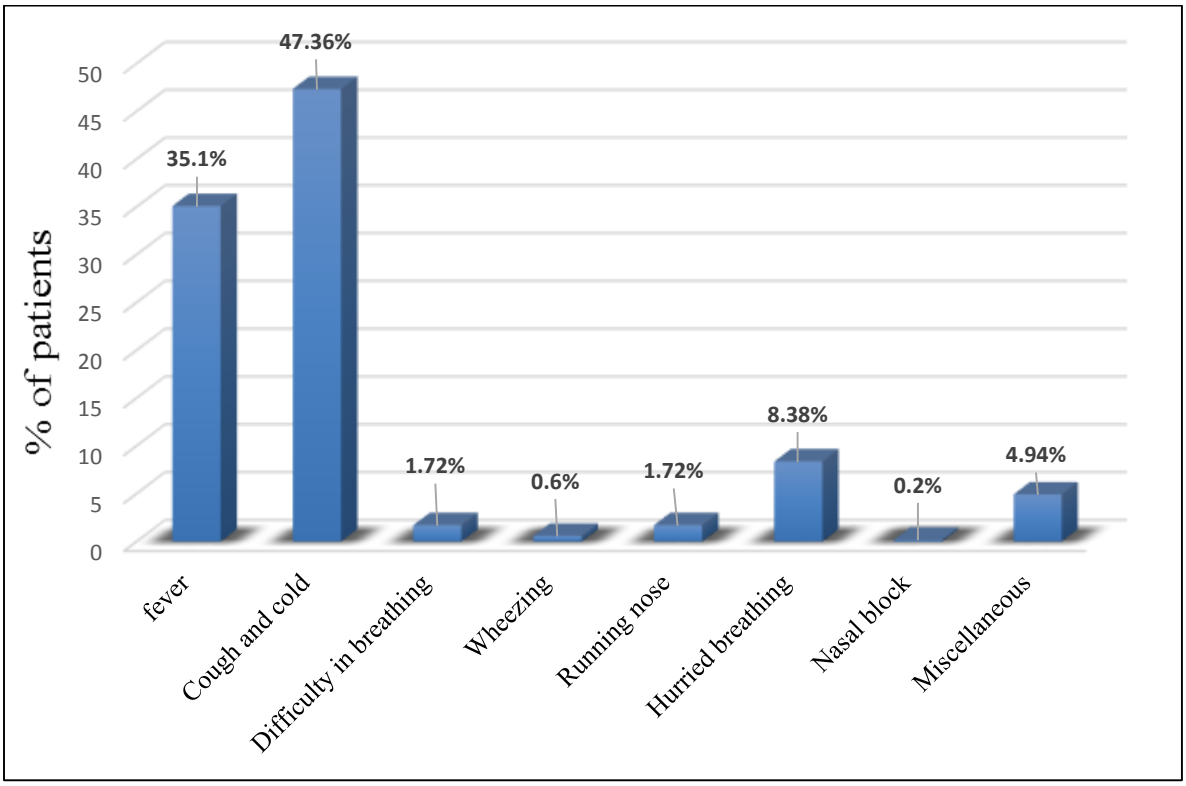


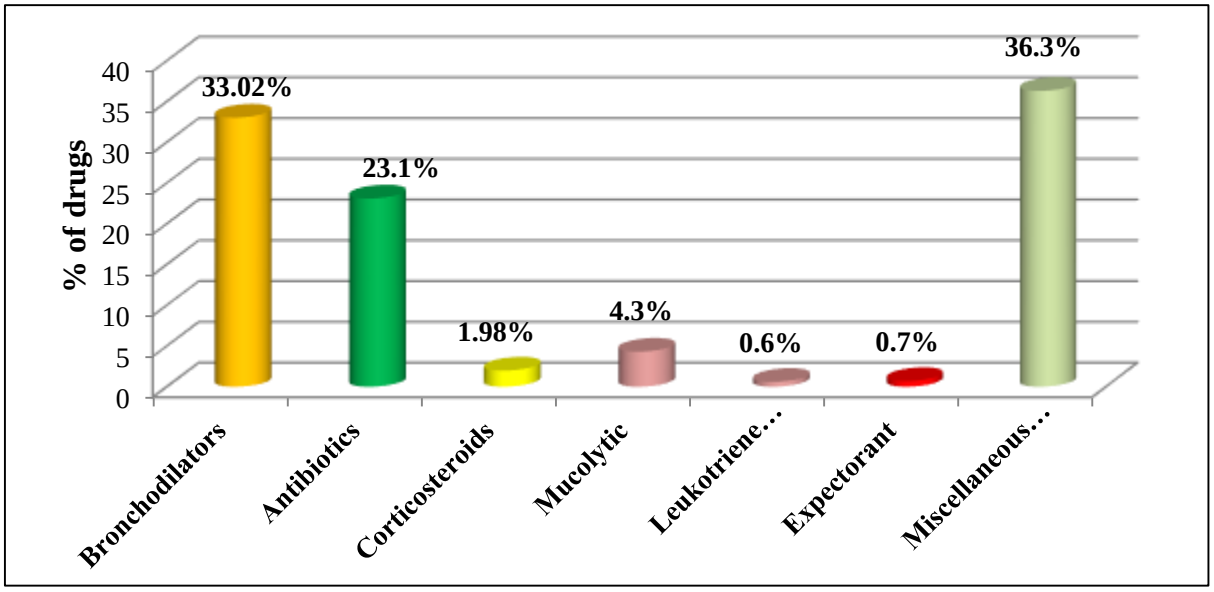
Figure 1: Reason for admission (n=465)

Majority of the pediatric patients were diagnosed with LRTI 95(42.2%), followed by ARI 60(26.7%), URTI 36(16.0%), Fever and cough 15(6.8%) Pneumonia 11(4.9%), Asthma 3(1.3%), Bronchiolitis and Chronic cough 02(0.8%), TB was observed in one patient as shown in **Table.1,** This data was supported by the same study previously conducted by **kokani VR et al.** The categories of the drug's prescribed for the treatment of the Pediatric Respiratory diseases were

Bronchodilator's 316(33.02%), Antibiotics 221(23.1%), Corticosteroids 19(1.98%), Mucolytic41(4.3%), Leukotriene modifiers 06(0.6%), Expectorants07(0.7%), Miscellaneous drugs 347 (36.3%) same was shown in **Figure 2.** In Bronchodilators categories most of the children were Prescribed with SABA 258(81.6%) and remaining patients were received Anticholinergic 58(18.4%) and Most commonly prescribed Bronchodilators were Salbutamol 245(77.2%), Ipratropium Bromide 58(18.4%) and Terbutaline 13(4.1%) same shown in **Figure. 3** Salbutamol was mostly prescribed because it is one of the most common medicines used in rescue inhalers and helps in fast relief from symptoms which were supported by the results of the previous study conducted by **Kumar VB et al.**

Table 1: Various clinical conditions under treatment (n=225)

Diagnosis	No. Of patients	Percentage (%)
LRTI	95	42.2
ARI	60	26.7
URTI	36	16
TB	1	0.4
Pneumonia	11	4.9
Fever and cough	15	6.8
Chronic cough	2	0.8
Asthma	3	1.3
Bronchiolitis	2	0.8



* Miscellaneous drug's: Antiemetic, Antihistamine's, PPI's, Antipyretic's.

Figure 2: Categories of drugs prescribed for Pediatric Respiratory diseases (n=957)

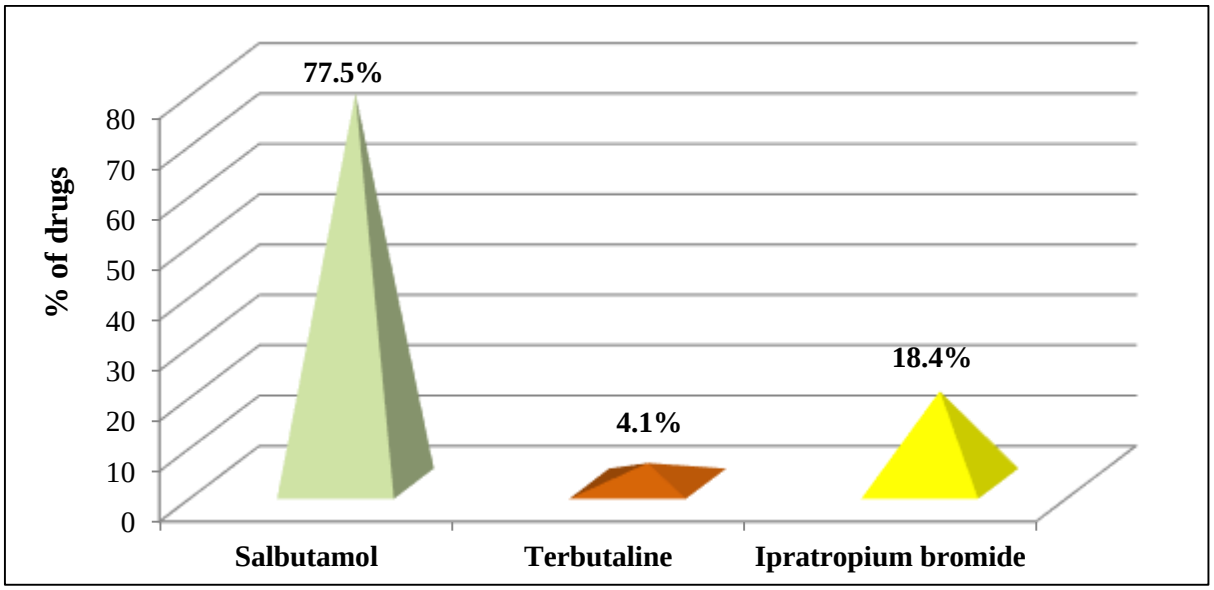


Figure 3: Break up of Bronchodilators Prescribed (n=316)

As **Table 2** shows that Out of 316 Bronchodilator therapy 275 (87%) of drugs were given by nebulization and 41(13%) drugs by oral route. Nebulization therapy is used to deliver medications along the respiratory tract and is indicated to various respiratory diseases. And the same result was supported by the study conducted by **Ahmed A et al.**.. The Antibiotics prescribed were Cephalosporin's 58.8%, Penicillin's 27.6%, and Amino glycosides13.57%and the same was shown in **Table 3.** Among the antibiotics ceftriaxone 49.3% were prescribed more followed by cefotaxime 9.5%, Ampicillin 25.3%, Amoxicillin 2.3%, and Amikacin13.6% shown in **Figure 4.**

Table 2: Route of administration of bronchodilators (n=316)

ROA	No. Of patients	Percentage (%)
Nebulization	275	87
Oral	41	13

Table 3: Categories of Antibiotics Prescribed (n=221)

Antibiotics	No. Of patients	Percentage (%)
Cephalosporin's	130	58.8
Penicillin's	61	27.6
Amino glycosides	30	13.57

The combination drugs prescribed were Salbutamol + Ambroxyl (12.3%), Ipratropiumbromide+Salbutamol(20.9%),Salbutamol+Budesonide(0.7%),Terbutaline+Ambroxyl+ Guafenesine(2.5%),Montelukast+Levocetrizine(2.2%),Ceftriaxone+Sulbactum(39.4%),Amoxicilli n+Clavulonicacid(1.8%),Ampicillin+Salbactam(17.3%),Ampicillin+Tazobactum (2.9%) same as shown in **Table 4** Ipratropiumbromide +Salbutamol combination improves the condition and reduces the hospital stay this was supported by the study conducted by **Harmudini M et al.**

Table 4: Combination of drugs prescribed (n=277)

Combination	Number	Percentage (%)
Salbutamol + Ambroxyl	34	12.3
Ipratropium bromide + Salbutamol	58	20.9
Salbutamol + Budesonide	2	0.7
Terbutaline + Ambroxyl + Guafenesine	7	2.5
Montelukast + Levocitrizine	6	2.2
Ceftriaxone + sulbactam	109	39.4
Amoxicillin + Clavulonic acid	05	1.8
Ampicillin + salbactam	48	17.3
Ampicillin + Tazobactum	8	2.9

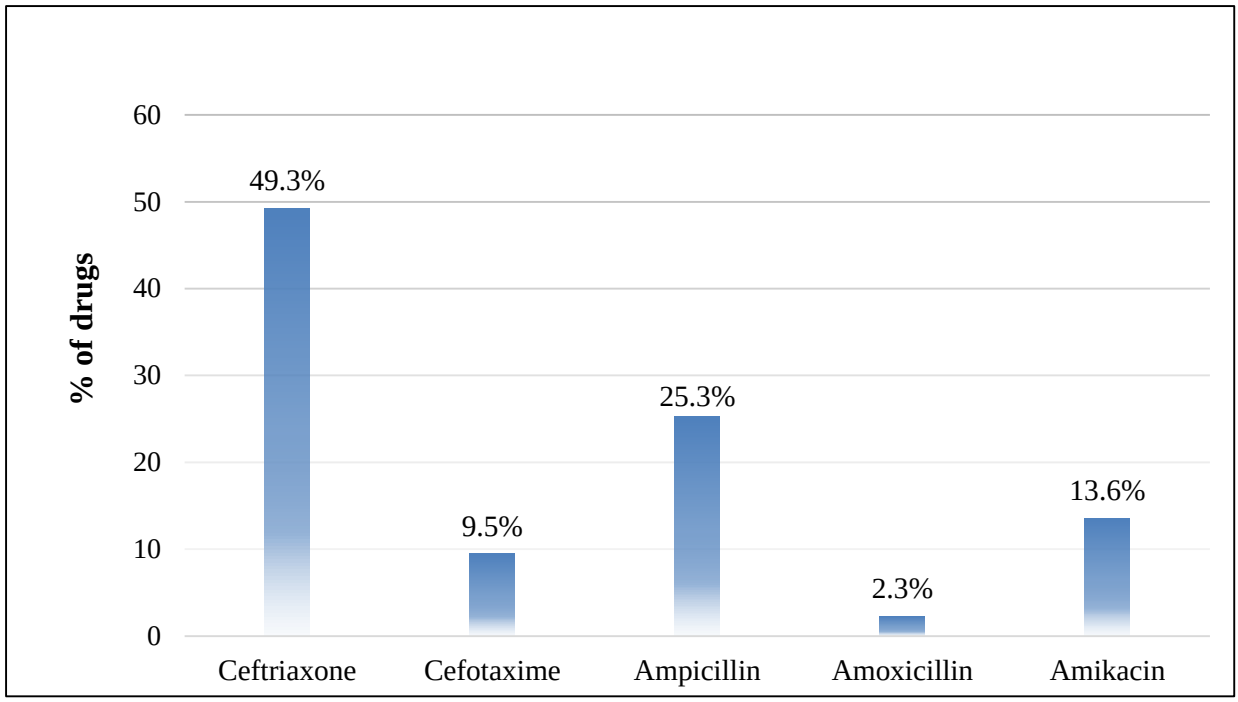


Figure 4: Break up of Antibiotics prescribed (n=221)

A separate questionnaire study was performed in order to assess parents/caregiver's Knowledge, attitude and practice towards Pediatric Respiratory disease therapy. In order to achieve these hypothesis parents/caregivers demographic details like social history, educational status and economic status were assessed. Our study shows that 56.4% parents were occasional smokers and 22.2% were daily smokers. It has been noted that 14.2% of them had never smoked and 7.2% had quit smoking. Parents/caregiver's social history like smoking and alcoholic has a great impact on Pediatric Respiratory diseases. Passive smoking is one of the important etiological factors for the development of Respiratory diseases in children. We found that most of the Parents were illiterate i.e., 74.7%. Illiteracy will lead to inability of parents/caregivers for proper management of Respiratory diseases in their children. This data was illustrated in **Table 5.**

As shown in the **Figure 5** most of the parents preferred nebulizers (61.4%) for the treatment of their child condition followed by syrups (25.3%), tablets (13.3%). This shows that parents/caregivers had felt that oral administration will lead to failure due to child's non-cooperation. Opinion of the parents regarding the use of nebulizer in their children was assessed and came to know that, most of the parents felt Easy to use 100(44.5%), followed by complicated 55(24.4%), Not complicated 60(26.7%) and Very complicated 10(4.4%) and shown in **Figure 6**. Parents were also interviewed about status of the conditions after taking the treatment, Most of the parents said that sleep 198 (88%), self-defense189(84%), Exercise tolerance 157(69.8%), Appetite 192 (85.3%) were improved and same shown in **Table 7** .

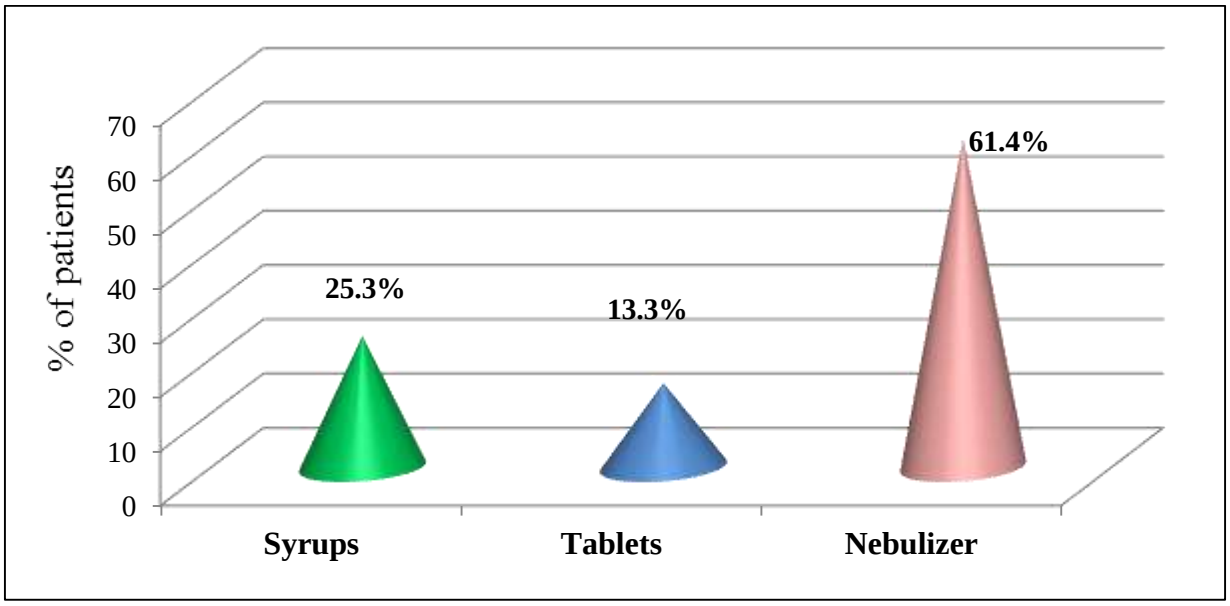


Figure 5: Formulation preference by Patient (or) Parent (n=225)

Table 6: Concern about the use of inhalers for child (n=225)

Parameters	No of patients	Percentage (%)
Cost	126	56
Addiction	23	10.2
ADR	45	20
Availability	31	13.8

Table 7: Status of conditions after taking the inhalation therapy (n=225)

Parameters	Improved		Not Improved	
	No. of Parents	(%)	No. of Parents	(%)
Sleep	198	88	27	12
Self defense	189	84	36	16
Exercise tolerance	157	69.8	68	30.2
Appetite	192	85.3	33	14.7

Most of the parents concern towards the nebulization therapy was cost 126 (56%), and others concern were as follows, ADR 23(10.2%), Availability 31(13.8%), and Addiction 23 (10.2%) respectively where depicted in **Figure7.** Parents were assessed regarding the satisfaction of their child's treatment, Most of the parents said that they were Satisfied 198(88%) and 27(12%) said Not satisfied same shown in **Figure 7.**

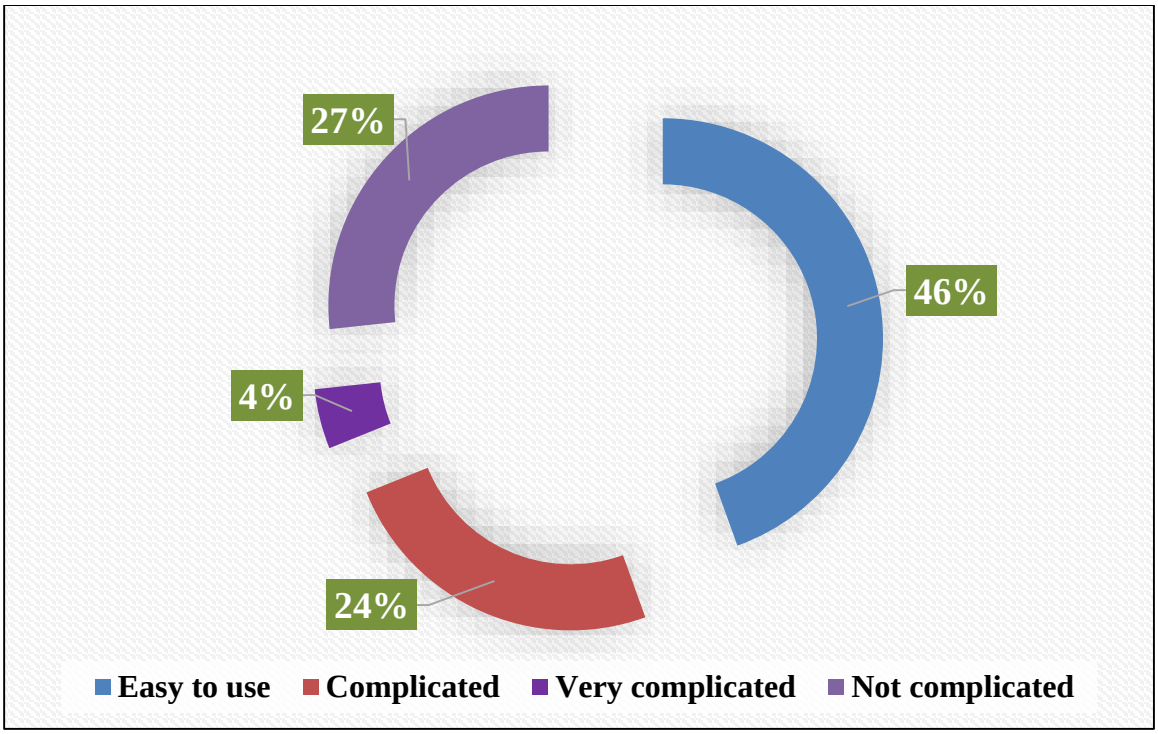


Figure 6: Feeling about the use of nebulizers (n=225)

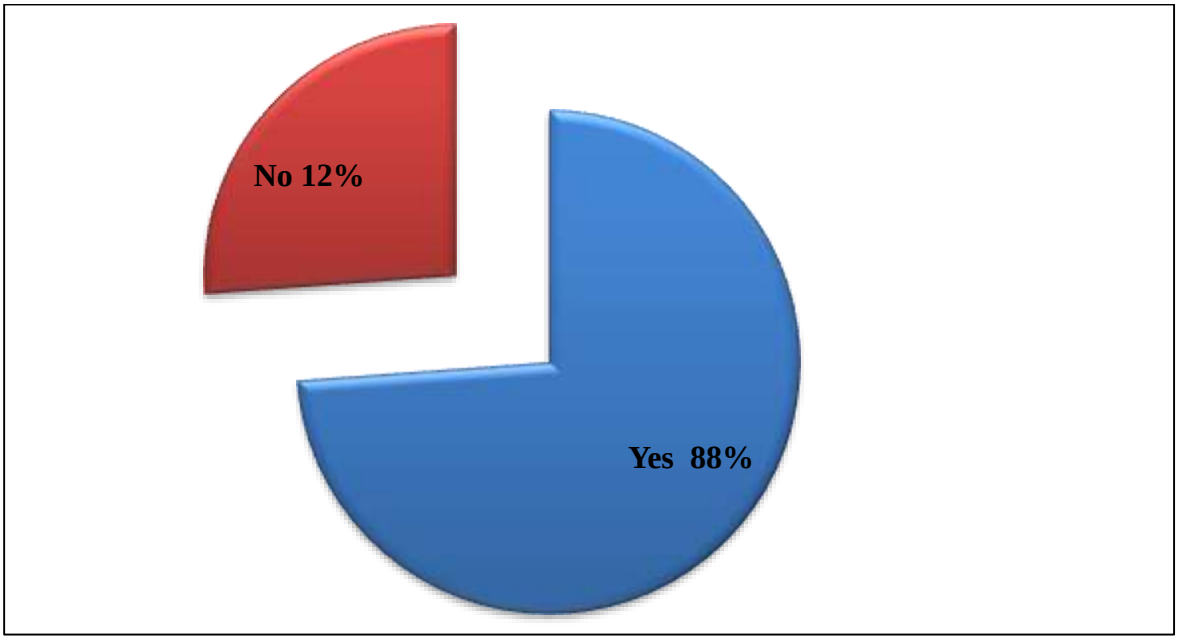


Figure 7: Satisfaction regarding child's treatment (n=225)

CONCLUSION

The study found that Bronchodilators uses were optimal, over use of antibiotics and under use of steroids. In order to reduce the risk of antibiotic resistance, an antibiotic policy should be carefully instituted and implemented**.** Educational interventions must be implemented for other health care professionals for more appropriate and cost effective prescribing. A separate patient education program also should be conducted to bring awareness among pediatric respiratory disease in parents/ caregivers. There by rational drug use can be achieved and improved quality of life in pediatric Respiratory diseases can be ensured

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