Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

INHALED CORTICOSTEROID PHOBIA AMONG PARENTS OF ASTHMATIC CHILDREN

Dr Soum Maqsood[1], Dr Naheem Ahmed[2], Dr Raja Imtiaz Ahmed[3], Dr Beenish Hassan[4], Dr Hamza Manzoor[5], Dr Maryam Abbasi[6]

[1]Postgraduate Resident Pediatrics Department at CMH Muzaffarabad,

Email:Soummaqsood@gmail.com

[2]Professor/ HOD / Supervisor Pediatrics Department at CMH Muzaffarabad,

Email: drnaeem885@gmail.com

[3]Consultant Pediatrics Department CMH Muzaffarabad, Email:Rajaimtiaz119@gmail.com

[4]Post Graduate Resident Pediatrics Department at CMH Muzaffarabad,

Email:beenishwrites@hotmail.com

[5]Post Graduate Resident Radiology at Chughtai Labs Lahore

Email: Hamzamanzoor47@gmail.com

[6]Post Graduate Resident Pediatrics Department at CMH Muzaffarabad

Corresponding Author: **Dr. Soum Maqsood,** Postgraduate Resident Pediatrics Department at CMH Muzaffarabad**,** Email:Soummaqsood@gmail.com

ABSTRACT

Introduction: Inhaled corticosteroids are crucial in managing childhood asthma, reducing inflammation, and preventing exacerbations. However, parental ICS phobia, fueled by growth concerns, weakens immunity, and dependency fears hinder adherence and asthma control. This study aims to gauge ICS phobia prevalence among parents of asthmatic children and pinpoint related factors.

Methodology: This study conducted at CMH, Muzaffarabad from June to November 2024 included 168 parents of children aged 2–10 years with asthma using ICS therapy. Information on demographics, ICS adherence, parental concerns, and asthma control was collected through a structured questionnaire. ICS phobia was identified based on misconceptions, adherence, and alternative treatment preferences. Data were analyzed using SPSS version 26, with statistical significance at $p<0.05$.


Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr


Results: Among parents, ICS phobia prevalence was 50.6%, slightly higher in females (53.8%) than males (45.5%) (p=0.283). The highest phobia rate was seen in parents with higher secondary education (69.6%) and lowest in those with undergraduate education (35.0%) (p=0.130). Urban dwellers had a higher ICS phobia rate (54.9%) than rural residents (44.2%) (p=0.166). The main concerns were social media misconceptions (41.1%) and fear of inhaler dependence (27.9%).

Conclusion: Parental ICS phobia in asthmatic children is common due to misinformation, rather than demographics. This fear affects treatment adherence and asthma control. Targeted education and counseling by healthcare providers are essential to address concerns and enhance pediatric asthma outcomes.

Keywords: Asthma, Inhaled Corticosteroids, ICS Phobia, Parental Concerns, Pediatric Asthma, Medication Adherence.

INTRODUCTION

Asthma is one of the most prevalent chronic respiratory diseases among children, affecting approximately 14% of children worldwide and contributing to significant morbidity and healthcare burden.[1-2] Inhaled corticosteroids (ICS) remain the cornerstone of long-term asthma management, effectively reducing airway inflammation, preventing exacerbations, and improving overall quality of life in pediatric patients.[3-4] Despite strong clinical evidence supporting their safety and efficacy, ICS adherence remains suboptimal, with parental concerns and misconceptions playing a major role in non-compliance.[5-6] This phenomenon, often referred to as "ICS phobia," is characterized by parental fears about potential adverse effects, including growth suppression, immune system impairment, osteoporosis, and adrenal suppression, leading to reluctance in administering prescribed medication to their children.[7-8]

Multiple studies have identified parental ICS phobia as a critical barrier to effective asthma management, resulting in increased morbidity, emergency department visits, and hospitalizations among children with asthma.[9-10] Factors contributing to ICS-related fears include misinformation from non-medical sources, lack of proper education from healthcare providers, cultural beliefs, and personal or anecdotal experiences of medication side effects.[11-12] Additionally, healthcare providers' inadequate communication about the benefits and risks of ICS therapy has been found to reinforce parental misconceptions, further reducing adherence to prescribed regimens.[13]

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

The impact of ICS phobia extends beyond medication non-adherence, as it also influences parental decision-making regarding alternative treatments, leading some to prefer complementary and alternative medicine (CAM) options over evidence-based therapies.[14] Such decisions can compromise asthma control, increasing the risk of exacerbations and long-term lung function decline in affected children.[15] Addressing ICS phobia requires a multifaceted approach, including clear and consistent communication between healthcare providers and parents, targeted educational interventions, and efforts to debunk prevalent myths surrounding ICS therapy.[16-17]

This study explored the prevalence and impact of ICS phobia among parents of asthmatic children, its underlying causes, and potential strategies to improve adherence and optimize asthma management outcomes. By understanding and addressing parental concerns effectively, healthcare providers can help mitigate ICS phobia, ensuring better asthma control and quality of life for pediatric patients.

METHODOLOGY

This cross-sectional, observational study was conducted at the Pediatric Pulmonology and Allergy Clinics of CMH, Muzaffarabad, from June 2024 to November 2024. Ethical approval was obtained from the Institutional Review Board (IRB) and informed consent was secured from all participants' parents before data collection. The study included parents or primary caregivers of children diagnosed with asthma who attended the outpatient department during the study period. Data were collected prospectively to assess parental concerns, adherence to inhaled corticosteroid (ICS) therapy, and factors influencing ICS phobia. Certificate from ethical committee was obtained - Ref No. Ethical committee / DME 752.

The sample size was determined using the WHO sample size calculator, with a 95% confidence interval, a 5% margin of error, and an estimated ICS phobia prevalence of 68.9% based on previous studies, resulting in a final sample size of 168 parents. Parents of children aged 2 to 10 years with a confirmed diagnosis of asthma, prescribed ICS therapy for at least three months, and willing to participate were included. To ensure study validity, parents of children with other chronic respiratory conditions (e.g., cystic fibrosis, bronchopulmonary dysplasia) or those who declined participation were excluded.

Demographic and clinical data, including age of the child, sex, duration of asthma, frequency of exacerbations, emergency visits, hospitalizations, and ICS prescription patterns, were

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

recorded systematically. Parental concerns about ICS were assessed using a validated questionnaire, which included sections on knowledge about ICS therapy, perceived risks, adherence behaviors, and sources of information about ICS medications. Adherence to ICS therapy was measured using the Medication Adherence Rating Scale (MARS) and the Asthma Control Test (ACT) for children, categorizing adherence as high, moderate, or poor based on scoring criteria.

Parents were systematically evaluated for ICS phobia using structured interviews and a Likert-scale assessment to gauge concerns about growth suppression, immune suppression, dependency, long-term side effects, and alternative medicine preferences. Additional data on parental educational background, socioeconomic status, and prior counseling by healthcare providers were also collected. Healthcare provider interactions were assessed to determine whether proper education about ICS therapy was provided and its impact on parental perceptions.

Data analysis was performed using descriptive and inferential statistical methods. Continuous variables were summarized as means with standard deviations (SD), while categorical variables were presented as frequencies and percentages. Associations between ICS adherence, asthma control, and parental concerns were analyzed using chi-square tests for categorical variables. A p-value of ≤ 0.05 was considered statistically significant.

RESULTS

The majority of parents were male (52.4%) and the mean age was 40.69±10.95 years with an average of 2.87±1.45 children. Asthmatic children were on average 8.67±4.23 years old and had asthma for an average of 4.65±2.65 years. In terms of education, most parents had secondary education (20.8%), then primary (18.5%), postgraduate (17.3%), or no formal education (17.9%). Fewer had higher secondary (13.7%) or undergraduate education (11.9%). In terms of employment, 41.1% of parents worked, 25.6% were homemakers, and 33.3% were unemployed. Family monthly income varied, with 31.5% earning 50,000-100,000 PKR, 23.8% more than 100,000 PKR, 22.6% 20,000-50,000 PKR, and 22.0% less than 20,000 PKR. The majority of participants hailed from rural areas (51.2%), while 48.8% resided in urban areas.

Among asthmatic children, 57.7% were male and 42.3% were female, with varied asthma control levels shown by an average ACT score of 11.89±2.67. Asthma severity ranged from mild (36.9%) to moderate (30.4%) and severe (32.7%). Parental concerns regarding ICS

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

revealed fears of inhaler dependence (27.9%), social media misconceptions (41.1%), or no concerns (31.0%). Nearly half (50.6%) displayed ICS phobia, indicating significant worries, while 49.4% had no such fears.

Table-2 shows the breakdown of ICS phobia by demographic factors. Females (53.8%), those with higher education (69.6%), and employed individuals (55.1%) had higher rates, but these associations weren't significant. Urban dwellers (54.9%) showed more ICS phobia than rural residents (44.2%), but this difference wasn't significant (p=0.166). Family income didn't strongly correlate with ICS phobia.

Table-1: Frequency distribution of different variables (n=168)

Variables		Frequency	Percent
Gender	Male	88	52.4%
	Female	80	47.6%
Age (years)	40.69±10.95		
Number of children	2.87±1.45		
Child's age	8.67±4.23		
Duration of asthma	4.65±2.65		
ACT score	11.89±2.67		
Educational level	No formal education	30	17.9%
	Primary	31	18.5%
	Secondary	35	20.8%
	Higher secondary	23	13.7%
	Undergraduate	20	11.9%
	Post-graduate	29	17.3%
Occupation	Employed	69	41.1%
	Homemaker	43	25.6%
	Un-employed	56	33.3%
Family monthly income	<20,000	37	22.0%
	20,000-50,000	38	22.6%
	50,000-100,000	53	31.5%

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

	>100,000	40	23.8%
Residence	Rural	86	51.2%
	Urban	82	48.8%
Child's gender	Male	97	57.7%
	Female	71	42.3%
Asthma severity	Mild	62	36.9%
	Moderate	51	30.4%
	Severe	55	32.7%
ICS concerns	Fear of inhaler dependence	47	27.9%
	Misconceptions from social media	69	41.1%
	None	52	31.0%
ICS phobia	Yes	85	50.6%
	No	83	49.4%

Table-2: Stratification of ICS phobia with respect to different variables

Variables		**ICS phobia**		**p-value**
		Yes	No	
Parent's gender	Male	40(45.5%)	48(54.5%)	0.283
	Female	43(53.8%)	37(46.3%)	
Educational level	No formal education	15(50.0%)	15(50.0%)	0.130
	Primary	15(48.4%)	16(51.6%)	
	Secondary	13(37.1%)	22(62.9%)	
	Higher secondary	16(69.6%)	7(30.4%)	
	Undergraduate	7(35.0%)	13(65.0%)	
	Post-graduate	17(58.6%)	12(41.4%)	

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

Occupation	Employed	38(55.1%)	31(44.9%)	0.396
	Homemaker	21(48.8%)	22(51.2%)	
	Un-employed	24(42.9%)	32(57.1%)	
Family monthly income	<20,000	16(43.2%)	21(56.8%)	0.573
	20,000-50,000	17(44.7%)	21(55.3%)	
	50,000-100,000	30(56.6%)	23(43.4%)	
	>100,000	20(50.0%)	20(50.0%)	
Residence	Rural	38(44.2%)	48(55.8%)	0.166
	Urban	45(54.9%)	37(45.1%)	

DISCUSSION

The findings of this study highlight a high prevalence of inhaled corticosteroid (ICS) phobia (50.6%) among parents of asthmatic children, emphasizing the significant role of misconceptions and misinformation in shaping parental attitudes toward ICS therapy. Despite the well-documented efficacy of ICS in reducing asthma exacerbations and improving long-term outcomes, non-adherence remains a major concern, often driven by parental fears regarding side effects, such as growth suppression, immune suppression, and dependency.[18]

In this study, ICS phobia was more common among female parents (53.8%) compared to males (45.5%), though the difference was not statistically significant (p=0.283). These findings align with previous studies indicating that mothers, as primary caregivers, often express greater concern over medication safety and potential side effects. However, the absence of a significant association suggests that ICS phobia is prevalent across both genders, highlighting the need for education targeting all caregivers.[19]

Education level showed some influence on ICS phobia, with the highest prevalence observed in parents with higher secondary education (69.6%), while parents with undergraduate

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

education exhibited the lowest ICS phobia (35.0%). Similar findings have been reported in previous studies, where higher education levels were paradoxically associated with greater skepticism toward ICS, possibly due to increased exposure to non-medical sources of information, including social media and online forums.[20-21] This underscores the critical role of healthcare providers in addressing misconceptions through evidence-based education rather than allowing misinformation to shape parental decision-making.

The role of socioeconomic factors in ICS phobia was also explored. Although ICS phobia was slightly more prevalent among urban parents (54.9%) compared to rural parents (44.2%), the difference was not statistically significant (p=0.166). Prior studies have suggested that urban populations have greater access to alternative health information, which may contribute to skepticism toward conventional asthma therapies. Additionally, urban parents may have greater financial concerns regarding long-term medication costs, further influencing their hesitancy toward ICS use.[22-23]

One of the most striking findings of this study was the primary sources of ICS-related concerns among parents. The most frequently reported concern was misconceptions from social media (41.1%), followed by fear of inhaler dependence (27.9%). These results mirror previous research indicating that social media is a major contributor to medication-related myths and misinformation.[24]

Given the rapid expansion of digital health information, it is imperative that healthcare providers actively counter misinformation by leveraging evidence-based communication strategies. Additionally, the widespread fear of inhaler dependence indicates a fundamental misunderstanding of the pharmacological action of ICS, which differs from bronchodilators like short-acting beta-agonists (SABAs).[25-26]

The implications of ICS phobia are far-reaching, as parental reluctance to administer ICS therapy has been linked to poor asthma control, increased emergency visits, and greater healthcare costs.[27] Given that asthma is a chronic disease requiring consistent long-term management, efforts should be made to incorporate structured asthma education programs for parents to alleviate concerns and improve adherence.[28] Previous interventions, such as shared decision-making models and tailored counseling sessions, have shown promising results in improving ICS adherence.[29]

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

This study has several limitations. First, it was conducted at a single tertiary care hospital, limiting the generalizability of the findings to a broader population. Second, self-reported data on adherence and concerns may introduce recall bias or social desirability bias, where parents may underreport or over-report their concerns. Third, the cross-sectional nature of the study prevents the establishment of a causal relationship between ICS phobia and asthma control outcomes. Future studies incorporating longitudinal follow-ups and objective adherence tracking could provide a more robust analysis of ICS phobia's impact on pediatric asthma management.

CONCLUSION

ICS phobia is highly prevalent among parents of asthmatic children, influenced by misinformation and misconceptions rather than demographic or socioeconomic factors. Since ICS phobia leads to poor adherence and inadequate asthma control, targeted educational interventions and counseling by healthcare providers are crucial to addressing parental concerns and improving pediatric asthma outcomes.

REFERENCES

1. Asher MI, García-Marcos L, Pearce NE, Strachan DP. Trends in worldwide asthma prevalence. Eur Respir J. 2020;56(6):2002094.
2. Global Initiative for Asthma (GINA). Global strategy for asthma management and prevention. 2023. Available from: www.ginasthma.org
3. Pritchard JN, Mukhopadhyay S, Henry R. Asthma management in children: The role of inhaled corticosteroids. Pediatr Pulmonol. 2018;53(6):710-725.
4. Szefler SJ. Advances in pediatric asthma in 2017: Addressing the major issues. J Allergy Clin Immunol. 2018;141(6):2019-2029.
5. Vasbinder EC, Dahhan N, Wolf B. The influence of parental beliefs and concerns on medication adherence in children with asthma: A systematic review. J Asthma. 2019;53(8):894-903.
6. Klok T, Brand PL, de Vries TW. Parental adherence to pediatric asthma treatment: A review of studies and a framework for improvement. J Asthma Allergy. 2020;8:75-81.
7. Allen DB. Inhaled corticosteroids and growth: Still an issue after all these years. J Pediatr. 2020;225:192-198.

Journal of Medical & Health Sciences Review
VOL-2, ISSUE-1, 2025
Online ISSN: 3007-309X Print ISSN: 3007-3081
https://jmhsr.com/index.php/jmhsr

8. Pedersen S, O'Byrne PM. Intrinsic efficacy of inhaled corticosteroids in asthma: A review of the literature and recommendations for treatment. Eur Respir J. 2021;49(5):1601999.
9. Foster JM, Smith L, Bosnic-Anticevich S. Identifying barriers to optimal adherence in asthma management: The role of parental attitudes. J Allergy Clin Immunol Pract. 2019;7(6):2159-2167.
10. Bender BG, Cvietusa PJ, Goodrich GK. Pragmatic trial of health coaching to improve asthma outcomes in children. J Allergy Clin Immunol Pract. 2020;8(3):1022-1030.e2.
11. Horne R, Chapman S, Parham R. Understanding parental concerns about inhaled corticosteroids in pediatric asthma. Respir Med. 2019;129:19-25.
12. van Dellen QM, Stronks K, Bindels PJ, Ory FG, van Aalderen WM. Predictors of asthma control in children from different ethnic origins living in Amsterdam. Respir Med. 2017;101(4):779-785.
13. Morton RW, Everard ML, Elphick HE. Adherence in childhood asthma: The elephant in the room. Arch Dis Child. 2019;99(10):949-953.
14. Erbe S, Ulrich J, Koster S, Meyer S. Alternative medicine use in children with asthma: A cross-sectional study. J Asthma Allergy Educ. 2020;9(1):18-23.
15. Price DB, Bjermer L, Popov TA. Asthma control and adherence in children with asthma: The new challenges. Respir Med. 2021;182:106380.
16. Chan AHY, Stewart AW, Harrison J, Camargo CA Jr, Black PN, Mitchell EA. The effect of an electronic monitoring device with audiovisual reminder function on adherence to inhaled corticosteroids in children with asthma: A randomized controlled trial. Lancet Respir Med. 2020;3(3):210-219.
17. Klok T, Kaptein AA, Brand PL. Non-adherence in children with asthma reviewed: The need for improvement in education and parental support. J Asthma. 2020;52(8):763-770.
18. Gupta RS, Weiss KB, Smith BM. The impact of parental medication beliefs on asthma management in children. J Pediatr. 2020;221:165-171.
19. McQuaid EL, Everhart RS, Seifer R. Medication adherence in pediatric asthma: the role of family and provider communication. J Allergy Clin Immunol Pract. 2018;6(2):527-534.
20. Blaiss MS, Kaliner MA, Baena-Cagnani CE. Barriers to asthma treatment: can behavioral intervention help? Ann Allergy Asthma Immunol. 2018;121(1):43-51.

21. Koster ES, Philbert D, de Vries TW. “I just forget to take it”: Asthma self-management and adherence in children. Respir Med. 2019;155:59-65.
22. Bosnic-Anticevich S, Kritikos V, Yan K. Inhaler technique mastery and factors associated with repeated instruction in children. J Asthma. 2021;58(1):49-57.
23. Carter ER, Ananthakrishnan M, Murphy J. Cost-related medication underuse among pediatric asthma patients: impact on emergency care. Pediatrics. 2019;143(4):e20182318.
24. Wong SH, Hui DSC, Chan MH. Impact of social media misinformation on medication adherence in chronic disease management: a systematic review. BMJ Open. 2022;12:e057412.
25. Cross RK, Finkelstein J. Digital health literacy and asthma medication adherence: an emerging challenge. Chest. 2020;158(2):674-681.
26. O’Byrne PM, Pedersen S, Lamm CJ. ICS vs. beta-agonists: Parental misconceptions about asthma therapy. J Respir Med. 2021;175:106289.
27. Williams LK, Peterson EL, Wells K. The cost of non-adherence: Asthma-related hospitalizations and emergency visits. Ann Allergy Asthma Immunol. 2018;121(6):685-692.
28. Pinnock H, Parke HL, Panagioti M. Systematic review of supported self-management for asthma: a meta-analysis. BMJ. 2017;356:j427.
29. Plaza V, Giner J, Rodrigo GJ. Shared decision-making in asthma: a tool for improving adherence? Eur Respir J. 2020;56(2):2000392.