

Myths and beliefs of long-term care providers towards starting inhaled medications in children with bronchial asthma

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Abstract

Introduction: Management of persistent forms of asthma needs long term use of inhalers. Myths and beliefs of long term care providers influence compliance with inhaled medications.

Objective: To assess the presence of myths and beliefs of long term care providers towards starting inhaled medications in children with bronchial asthma and the influence of socio-demographic factors on them.

Method: A prospective cross-sectional descriptive study was carried out in clinics and in-ward patients of paediatric units at 3 Base Hospitals using a self-administered questionnaire. The patients selected were those who were newly planned to start or those already on inhaled medications for bronchial asthma. Care providers who were educated by our team and short term care givers were excluded.

Results: The study included 242 long term care-givers of children with bronchial asthma. Of them, 98% had education beyond Grade 5 and 75% had a family income greater than Rs.30, 000/- per month. Majority (59.4%) were already informed regarding the use of inhalers and of them, more than 95% received it from a health care worker. The most prevalent myth among them was that 'the cost of inhalers is very high' (n=99, 41%). Among the other myths, a significant percentage of parents believed that 'inhalers may damage the lungs' (n=92, 38%) and in 'inhaler dependency' (n=86, 35.5%). The proportions of parents having myths

were more with the more educated and higher income groups. Previous use of inhalers by the patient or a family member did not significantly influence the presence of myths.

Conclusions: A significant proportion of parents / long term care-givers of children with bronchial asthma had myths and false beliefs towards starting inhaled medications. The most prevalent myth was that 'the cost of inhalers is very high'

(Key words: Parental myths, false beliefs, inhalers, bronchial asthma)

Introduction

Asthma is a common chronic childhood illness. A study done on children in the age groups 6-7 and 13-14 years has revealed that 30-40% had wheezing at some age in their lives and 25% of them had at least one severe attack¹. According to the International Study of Asthma and Allergies in Childhood (ISAAC), the prevalence rate of childhood asthma in Sri Lanka can be as high as 30-40%¹. It is also a common cause of school absenteeism^{1,2,3}. Inhalers play a major role in the management of asthma. Sri Lankan parents entertain considerable myths and false beliefs about inhalers and as a result are reluctant to use them on their children. This leads to poor compliance of inhaled medications and negative effects on long term continuation of inhalers⁴.

Objectives

To assess the presence of myths and beliefs of parents / long term care providers towards starting inhaled medications in children with bronchial asthma and the influence of socio-demographic factors on them.

Method

A prospective cross-sectional descriptive study was carried out in clinics and in-ward patients of paediatric units at Base Hospital (BH) Dambadeniya, BH Thambuththegama and BH Kantale on patients who were due to be initiated or were already on inhaled medications for long term prophylaxis of asthma. A self-administered standardised questionnaire in Sinhala, English and

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Tamil was distributed among parents / long term care-givers of the study population. Those who could not understand the questionnaire were helped by one of the investigators. The sample size was calculated according to the method of S K Lwanga, and S Lemeshow⁵. Estimated sample size was 218. Children who presented with guardians, other than their parents, who were not long-term care providers, were not included in the study. The parents who were previously educated by our team also were not included. Results were analysed using SPSS-17. For descriptive statistics proportions, percentages and mean values were used. Different socio-demographic groups were compared using Pearson Chi-squared test.

Results

Two hundred and forty two parents / long-term care givers were enrolled in the study. Their mean age was 36.0 (SD=6.826) years. The socio-demographic data is shown in Table 1

In 88 (36.4%) instances child had used inhalers before, in 151 (62.4%) instances there was no prior use of inhalers by child and there were 3 (1.2%) non responders. In 71 (29.3%) instances a family member was using inhalers, in 161 (66.6%) cases no family member was using inhalers and there were 10 (4.1%) non responders. The 242 children had bronchial asthma for a median duration of 18 (Inter quartile range 10-36) months and a mean duration of 23.3 (SD=18.8) months. One hundred

and forty two (59.4%) parents had already been informed about inhalers, 84.6% by a doctor, 9.1% by a nurse, 3.5% by a pharmacist and 2.8% by relatives and others.

Table 1: Socio-demographic data (n=242)

Factor	Number (%)
<i>Relationship to child</i>	
Mother	177 (73.1)
Father	58 (24.0)
Grandmother	06 (02.5)
Non Responders	01 (00.4)
<i>Ethnicity</i>	
Sinhalese	225 (93.0)
Tamil	02 (0.8)
Muslim	15 (06.2)
<i>Income (Rupees)</i>	
<30,000	50 (20.6)
30-40,000	66 (27.3)
40-50,000	53 (21.9)
>50,000	28 (11.6)
Non Responders	45 (18.6)
<i>Highest examination passed</i>	
<Grade 2	21 (08.7)
Up to Ordinary Level	122 (50.4)
Up to Advanced Level	66 (27.3)
Up to Degree	17 (07.0)
Non Responders	16 (06.6)

The percentages of parents having myths/beliefs are shown in Figure 1.

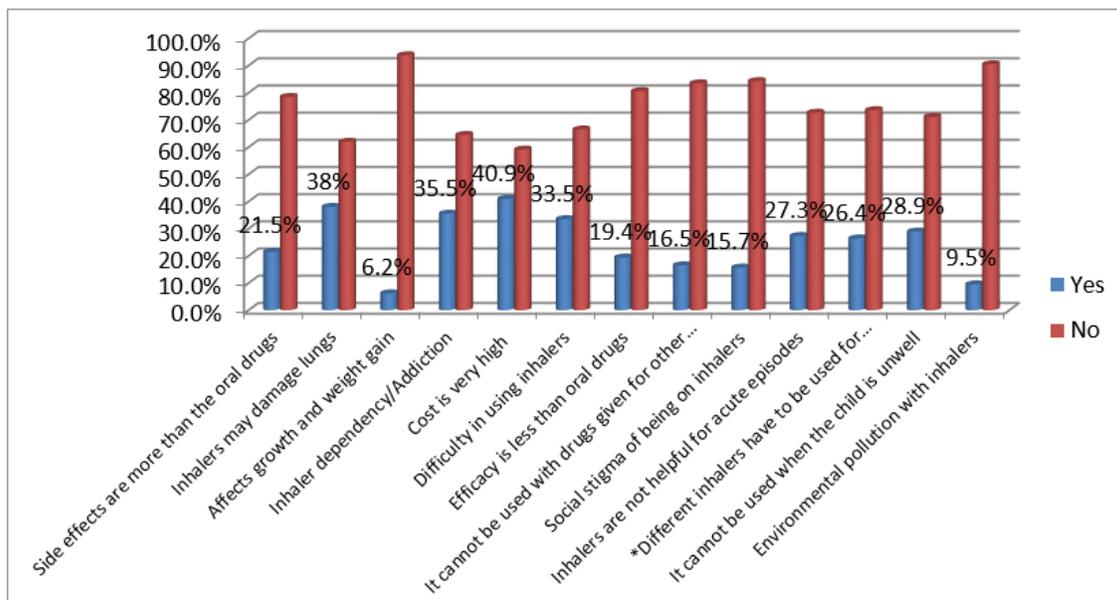


Figure 1: Percentages of parents having myths/beliefs

Of 222 responders, 67 (30.2%) preferred oral medication to inhaled medications as long term treatment for bronchial asthma. As our objective

was to identify the presence of myths and beliefs, for further statistical analysis, the response “NO” and “DO NOT KNOW” were amalgamated as

“NO”. (Both responses “No” and “Do not know” means there is no myth or belief). The associations

of myths and socio-demographic factors are shown in Tables 2-5.

Table 2: Association of myths and socio-demographic factors

Socio-demographic factors	Myths							
	Inhalers have more side effects <i>n</i> =52		Inhalers may damage lungs <i>n</i> =92		Inhaler dependency <i>n</i> =86		Cost is very high <i>n</i> =99	
	No. (%)	P	No. (%)	P	No. (%)	P	No. (%)	P
<i>Income (Rupees)</i>								
<30,000	12 (24.0)	0.021	21 (42.0)	0.011	19 (38.0)	0.373	20 (40.0)	0.364
30-40,000	08 (12.1)		17 (25.8)		19 (28.8)		30 (45.5)	
40-50,000	09 (17.0)		18 (34.0)		17 (32.1)		20 (37.7)	
>50,000	11 (39.3)		17 (60.7)		13 (46.4)		16 (57.1)	
Non Responders	12 (26.7)		19 (42.2)		18 (40.0)		06 (13.3)	
<i>Education</i>								
Up to grade 2	05 (23.8)	0.005	08 (38.1)	0.112	09 (42.9)	0.071	08 (38.1)	0.703
Up to O/L	19 (15.6)		39 (32.0)		50 (41.0)		48 (39.3)	
Up to A/L	16 (24.2)		29 (43.9)		20 (30.3)		29 (43.9)	
Up to degree	09 (52.9)		10 (58.8)		02 (11.8)		09 (52.9)	
Non Responders	03 (06.7)		06 (13.3)		05 (11.1)		05 (11.1)	
<i>Child has been on inhalers</i>								
Yes	22 (25.0)	0.292	33 (37.5)	0.970	24 (27.3)	0.052	39 (44.3)	0.426
No	29 (19.2)		57 (37.7)		60 (39.7)		59 (39.1)	
Non Responders	01 (02.2)		02 (04.4)		02 (04.4)		01 (02.2)	
<i>Family member on inhalers</i>								
Yes	12 (16.9)	0.398	25 (35.2)	0.633	29 (40.8)	0.147	29 (40.8)	0.876
No	35 (21.7)		62 (38.5)		50 (31.1)		64 (39.8)	
Non Responders	05 (11.1)		05 (11.1)		07 (15.6)		06 (13.3)	

Table 3: Association of myths and socio-demographic factors (continued)

Socio-demographic factors	Myths					
	Difficulty in use <i>n</i> =86		Efficacy is less than oral medications <i>n</i> =47		Inhalers affect growth <i>n</i> =15	
	No. (%)	P	No. (%)	P	No. (%)	P
<i>Income (Rupees)</i>						
<30,000	15 (30.0)	0.903	08 (16.0)	0.657	04 (08.0)	0.493
30-40,000	23 (34.8)		10 (15.2)		05 (07.6)	
40-50,000	16 (30.2)		08 (15.1)		03 (05.7)	
>50,000	10 (35.7)		07 (25.0)		0 (0)	
Non Responders	22 (48.9)		14 (31.1)		03 (06.7)	
<i>Education</i>						
Up to grade 2	10 (47.6)	0.541	05 (23.8)	0.036	0 (0)	0.408
Up to O/L	41 (33.6)		20 (16.4)		09 (07.4)	
Up to A/L	21 (31.6)		08 (12.1)		03 (04.5)	
Up to degree	07 (41.2)		07 (41.2)		02 (11.8)	
Non Responders	07 (15.6)		07 (15.6)		01 (02.2)	
<i>Child has been on inhalers</i>						
Yes	25 (28.4)	0.172	22 (25.0)	0.113	11 (12.5)	0.002
No	56 (37.1)		25 (16.6)		04 (02.6)	
Non Responders	05 (11.1)		0 (0)		0 (0)	
<i>Family member on inhalers</i>						
Yes	27 (38.0)	0.256	14 (19.7)	0.758	06 (06.0)	0.305
No	49 (30.4)		29 (18.0)		08 (08.0)	
Non Responders	10 (22.2)		04 (08.9)		01 (02.2)	

Table 4: Association of myths and socio-demographic factors (continued)

Socio-demographic factors	Myths					
	Inhalers cannot be used with the drugs given for other illness <i>n=40</i>		Social stigma of being on inhalers <i>n=38</i>		Inhalers are not helpful for acute episodes <i>n=66</i>	
	No. (%)	P	No. (%)	P	No. (%)	P
<i>Income (Rupees)</i>						
<30,000	06 (12.0)	<i>0.161</i>	05 (10.0)	<i>0.073</i>	15 (30.0)	<i>0.486</i>
30-40,000	13 (19.7)		12 (18.2)		20 (30.3)	
40-50,000	06 (11.3)		07 (13.2)		11 (20.8)	
>50,000	08 (28.6)		09 (32.1)		10 (35.7)	
Non Responders	07 (15.6)		05 (11.1)		10 (22.2)	
<i>Education</i>						
Up to grade 2	02 (09.5)	<i>0.022</i>	04 (19.0)	<i>0.926</i>	08 (38.1)	<i>0.622</i>
Up to O/L	25 (20.5)		20 (16.4)		30 (24.6)	
Up to A/L	04 (06.1)		09 (13.6)		17 (25.8)	
Up to degree	05 (29.4)		03 (17.6)		05 (29.4)	
Non Responders	04 (08.9)		02 (04.4)		06 (13.3)	
<i>Child has been on inhalers</i>						
Yes	16 (18.2)	<i>0.552</i>	18 (20.5)	<i>0.142</i>	33 (37.5)	<i>0.006</i>
No	23 (15.2)		20 (13.2)		32 (21.2)	
Non Responders	01 (02.2)		0 (0)		01 (02.2)	
<i>Family member on inhalers</i>						
Yes	17 (23.9)	<i>0.027</i>	13 (18.3)	<i>0.598</i>	18 (25.4)	<i>0.829</i>
No	20 (12.4)		25 (15.5)		43 (26.7)	
Non Responders	03 (06.7)		0 (0)		05 (11.1)	

Table 5: Association of myths and socio-demographic factors (continued)

Socio-demographic factors	Myths					
	It cannot be used when child is unwell <i>n=70</i>		Different inhalers have to be used for acute attacks and for prevention <i>n=64</i>		Environmental pollution with inhalers <i>n=23</i>	
	No. (%)	P	No. (%)	P	No. (%)	P
<i>Income (Rupees)</i>						
<30,000	16 (32.0)	<i>0.236</i>	15 (30.0)	<i>0.028</i>	05 (10.0)	<i>0.181</i>
30-40,000	17 (25.8)		17 (25.8)		10 (15.2)	
40-50,000	12 (22.6)		07 (13.2)		02 (03.9)	
>50,000	12 (42.9)		12 (42.9)		02 (07.1)	
Non Responders	13 (28.9)		13 (28.9)		04 (08.9)	
<i>Education</i>						
Up to grade 2	01 (04.8)	<i>0.096</i>	04 (19.0)	<i>0.637</i>	03 (14.3)	<i>0.217</i>
Up to O/L	38 (31.1)		35 (28.7)		14 (11.7)	
Up to A/L	20 (30.3)		16 (24.2)		04 (06.1)	
Up to degree	05 (29.4)		06 (35.3)		0 (0)	
Non Responders	06 (13.3)		03 (06.7)		02 (04.4)	
<i>Child has been on inhalers</i>						
Yes	27 (30.7)	<i>0.637</i>	30 (34.1)	<i>0.028</i>	05 (05.7)	<i>0.229</i>
No	42 (27.8)		32 (21.1)		18 (12.1)	
Non Responders	01 (02.2)		02 (04.4)		0 (0)	
<i>Family member on inhalers</i>						
Yes	31 (43.7)	<i>0.001</i>	18 (25.4)	<i>0.754</i>	06 (8.5)	<i>0.818</i>
No	37 (23.0)		44 (27.3)		17 (10.7)	
Non Responders	02 (04.4)		02 (04.4)		0 (0)	

Fifty two (21.5%) parents / long-term care givers believed that 'inhalers have more side effects than oral drugs' (Figure 1). This myth was significantly associated with the family income and the level of education of the parents / long-term care givers but not with prior use of inhalers by the child or a family member (Table 2).

Ninety two (38%) parents / long-term care givers believed that 'inhalers may damage lungs' (Figure 1). This myth was significantly associated with the family income but not with the level of education of the parents / long-term care givers nor with prior use of inhalers by the child or a family member (Table 2).

Eighty six (35.5%) parents / long-term care givers thought that the 'child may get addicted to the inhalers' (Figure 1). This myth was not significantly associated with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by the child or a family member (Table 2).

Ninety nine (40.9%) parents / long-term care givers believed that the 'inhalers were very costly compared to oral medications' (Figure 1). This myth was not significantly associated with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by the child or a family member (Table 2).

Eighty six (33.5%) parents / long-term care givers thought the 'use of inhalers was difficult' (Figure 1). This myth was not significantly associated with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by the child or a family member (Table 3).

Forty seven (19.4%) parents / long-term care givers believed that 'efficacy of inhalers was less compared to oral drugs' (Figure 1). This myth was significantly associated with the level of education of the parents / long-term care givers but not with family income nor with prior use of inhalers by the child or a family member (Table 3).

Fifteen (6.2%) parents / long-term care givers believed that 'inhalers affect growth' (Figure 1). This myth was significantly associated with prior use of inhalers by the child but not with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by a family member (Table 3).

Forty (16.5%) parents / long-term care givers believed the myth that 'inhalers could not be used with drugs given for other illnesses' (Figure 1). This myth was significantly associated with the level of education of the parents / long-term care

givers and with prior use of inhalers by a family member but not with the family income nor with prior use of inhalers by the child (Table 4).

Thirty eight (15.8%) parents / long-term care givers believed that 'being on inhalers leads to unfavourable social stigma' (Figure 1). This myth was not significantly associated with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by the child or a family member (Table 4).

Sixty six (27.3%) parents / long-term care givers thought 'inhalers were not helpful for acute episodes' (Figure 1). This myth was significantly associated with prior use of inhalers by the child but not with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by a family member (Table 4).

Seventy (28.9%) parents / long-term care givers believed that 'inhalers cannot be used when child was unwell' (Figure 1). This myth was significantly associated with prior use of inhalers by a family member but not with the family income, level of education of the parents / long-term care givers nor with prior use of inhalers by the child (Table 5).

Sixty four (26.4%) parents / long-term care givers believed that 'different inhalers have to be used for acute episodes and for prevention' (Figure 1). This myth was significantly associated with the family income and with prior use of inhalers by the child but not with the level of education of the parents / long-term care givers nor with prior use of inhalers by a family member (Table 5).

Twenty three (9.5%) parents / long-term care givers believed that 'inhalers caused environmental pollution' (Figure 1). This myth was not significantly associated with the family income, the level of education of the parents / long-term care givers nor with prior use of inhalers by the child or a family member (Table 5).

Age and Myths

In this study presence of these myths according to the age was studied for 3 age groups namely less than 30 years, 30-39 years and 40 or more years. There were no statistically significant associations.

Sex and Myths

Comparison of the presence of myths between mothers and fathers did not reveal significant difference for any of the myths studied. The most prevalent myth among the mothers was that inhalers may damage the lungs (40%) while among the fathers the most prevalent myth was 'cost is very high' (48.8%).

Duration of asthma and Myths

The study population was subcategorized into 4 groups depending on the duration of asthma of their child viz. less than 12 months, 12-23 months, 24-35 months and more than 35 months. Cross tabulation showed the following statistically significant associations:

- Of 217 responders, 138 had children whose duration of asthma was less than 24 months whilst 79 had children whose duration of asthma was 24 months or more. Thirty seven of the 138 thought that 'side effects were more with inhalers than with oral drugs' compared with 12 of the 79. This was statistically significant ($p=0.034$; $p<0.05$). Sixty one of the 138 thought that 'inhalers may damage the lungs' compared with 21 of the 79. This was statistically significant ($p=0.007$; $p<0.01$).
- Of 217 responders, 184 had children whose duration of asthma was less than 36 months whilst 33 had children whose duration of asthma was 36 months or more. Seventy three of the 184 believed in inhaler dependency / addiction compared with 4 of the 33. This was statistically significant ($p=0.001$; $p<0.01$).
- Of 217 responders, 93 had children whose duration of asthma was less than 12 months whilst 124 had children whose duration of asthma was 12 months or more. Eighteen of the 93 thought that 'different inhalers have to be used for acute attacks and for prevention' compared with 39 of the 124. This was statistically significant ($p=0.031$; $p<0.05$). Seventeen of the 93 thought that 'inhalers cannot be used when the child is unwell' compared with 42 of the 124. This was statistically significant ($p=0.008$; $p<0.01$).

Discussion

In the management of any chronic illness, compliance is a major requirement. Non-compliance with inhaled prophylactic medication has been estimated to be 30 to 50% in children^{6,7}. Treatment of childhood asthma has become a more complex process as significant proportion of parents have myths and unscientific beliefs^{8,9}. Thus, parents who doubt the efficacy of inhalers and have misconceptions and myths regarding the use of inhalers are less likely to enforce treatment adherence diligently in their child and hence the compliance would be poor in them^{8,9}. Therefore, education and counselling of the parents of patients

are important in ensuring compliance¹⁰. In that context, it is important to identify the common myths and beliefs in our parents and their associations with socio-demographic factors. Future programmes on education and counselling have to be planned by taking into account these myths and false beliefs.

In this study, our plan was to identify common myths and beliefs and their prevalence. Majority (73%) of the long-term caregivers who accompanied these patients were mothers. Due to the variation of the distribution of ethnic groups in Dambadeniya and Thambuththegama, 93% of enrolled patients were Sinhalese. This does not represent the true national ethnic proportions. More than 75% of families had incomes exceeding Rs.30,000 and more than 75% had education up to GCE (Ordinary Level) or higher and 98% had education above Grade 5. Therefore, this study population had reasonable incomes and good levels of education. Around 60% of this population already had information regarding the use of inhalers and of them, more than 95% had been counselled by a health care worker.

The most prevalent myth or false belief among our parents / long-term caregivers was that 'the cost of inhalers is very high' (41%, $n=99$). Among the other myths, 38% believed that 'inhalers may damage the lungs', 36% believed in 'addiction to inhalers or dependency' and 34% in 'difficulty in using inhalers'. A study done in Malaysia showed that 91% of parents were concerned about side effects of inhalers, 86% thought of inhaler addiction, 34% were concerned with the cost and 15% were concerned about the difficulty in using inhalers⁸. Compared to Malaysian parents the presence of those myths in our population is significantly less. Although Malaysian parents were more concerned about side effects, our parents' main concern was the cost. This concern can be addressed by making those different types of inhalers and spacer devices freely available at the state sector hospitals.

Percentage of parents / long-term caregivers believing 'inhalers have more side effects' ($p=0.005$), 'efficacy is less than oral drugs' ($p=0.036$), and 'inhalers cannot be used with the drugs given for other illnesses' ($p=0.022$) were significantly associated with their levels of education. This needs further study. In the Malaysian study population there was no significant association noted with education⁸. Contrary to expectation, the myths that 'inhalers are not helpful for acute episodes' ($p=0.006$) and 'inhalers affect growth; ($p=0.002$) were significantly more in parents whose children had been on inhalers. There was no significant impact

of having another family member on inhalers on the presence of these myths and beliefs.

The false beliefs that 'side effects were more with inhalers than with oral drugs' and 'inhalers may damage the lungs' were significantly less in parents / long-term care givers whose children had a duration of asthma of 24 months or more. Significantly less number of parents / long-term care givers whose children had a duration of asthma more than 35 months believed in 'inhaler dependency / addiction'. However, the myth that 'different inhalers have to be used for acute attacks and for prevention' was significantly more among the parents / long-term care givers of the 12 month or more group compared to the less than 12 month group.

Conclusions

- A significant proportion of parents / long-term care givers of children with bronchial asthma have myths and false beliefs.
- The most prevalent myth or false belief among our parents / long-term caregivers was that 'the cost of inhalers is very high'

Recommendations

Health education programmes should go in hand-in-hand with the prescription of asthma inhalers to correct these myths and false beliefs and hence achieve maximum benefit of these inhalers by improving compliance. It would be advisable to use leaflets and multimedia to educate parents accompanying these asthmatic patients, in addition to verbal advice for a better outcome.

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