

Knowledge and perceptions on childhood asthma among care-takers of children with asthma at a National Referral Hospital in Western Kenya: a descriptive study

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Abstract

Background: Identifying knowledge gaps in asthma self-management and identifying existing myths is an important step in determining appropriate health education and demystifying the myths so as to enhance asthma control.

Objective: To identify existing knowledge gaps and perceptions among the caregivers of asthmatic children.

Methods: A cross sectional study was done among caretakers of asthmatic children aged 6-11 years at Moi Teaching and Referral Hospital. Data on knowledge and perceptions among caretakers was collected using a questionnaire.

Results: A total of 116 caretakers were recruited of whom 71.6% were mothers. Although 60% of the caretakers had asthma medications at home, only a third felt their children were asthmatic. Eighty four (72.4%) had basic asthma knowledge. Syrups were preferred to inhalers by 70.7%, with 64.7% believing that inhalers were for the very sick. Only 36 (31%) felt preventer medications in asthma were necessary. Acceptance of asthma as a diagnosis and presence of asthma drugs were significantly associated with better knowledge of asthma, p-values 0.015 and 0.009 respectively.

Conclusion: Most caregivers perceive syrups to be better despite having good basic knowledge on asthma. There is need to address asthma perceptions among caretakers in resource poor settings which is likely to improve control.

Keywords: Childhood asthma, care-takers, Western Kenya.

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Background

The mainstay of asthma management includes use of bronchodilators such as salbutamol and use of steroids mainly the inhaled ones. The intensity of the treatment chosen is mainly influenced by the severity¹. These medications form the cornerstone of management². There

have been concerted efforts to ensure that these drugs are available so as to ease the individual's burden of asthma. Some evidence shows that the availability of these medications alone does not lead to good control³.

Many other factors influence the level of asthma control. Some of these factors are related to health workers while others relate to the caretakers of the children. Adherence to treatment is the single most important determinant of asthma control⁴. This however is affected by the parents' satisfaction with involvement in decision-making as well as perceived level of interaction with the health worker⁵. Similarly, low educational attainment, low income, cigarette smoking, co-morbid conditions including obesity

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and depression⁶, pet ownership, other allergic comorbid diseases, especially rhinitis⁷, weather seasonality (including pollination), occupation and food allergies⁸⁻¹⁰ have also been shown to affect control in asthmatics.

In low income countries, including Kenya, many children continue to visit hospitals with acute symptoms of asthma, which is a pointer to poor control. In a recent study in Nairobi and its environs, good control was reported as 42% among asthmatic children aged 1-14 years¹¹. In addition to the factors highlighted above, the socio-economic factors have a great role in exacerbating asthma attacks. The level of acceptance of current care is affected by misconceptions and stigma associated with the management especially the use of inhalers¹². We describe the myths, perceptions and knowledge on asthma among parents of children with asthma in a poor resource setting.

Methods

A cross-sectional study was carried out at the children's clinics of the Moi Teaching and Referral Hospital (MTRH), between August 2016 and December 2016. MTRH is a national referral hospital located in Eldoret serving the Western part of Kenya with a catchment population of approximately 15 million. Up to 3000 children are seen per month in this hospital. There are two specialized paediatric clinics per week which attend to an average of 100 children per month. Although there is a paediatric pulmonology clinic being set up, the numbers are still low. There are no asthma health educators and patient education is at the discretion of the attending clinician. No lung function tests are performed on children who are on management for asthma in this hospital.

Children aged 6-11 years attending the clinic at MTRH together with their parents/caretakers were enrolled into phase one, a cross sectional study, (subsequently enrolled into a second phase, a trial registration PAC-TR201702002061736) if they met diagnosis of asthma using ISAAC screening questionnaire and consent was given. We excluded children who were unstable or very sick (requiring urgent resuscitation measures such as oxygen, urgent rehydration, anti-convulsants) or succumbed to illness within 24 hours of screening. Similarly those with serious chronic comorbidities, for example, chronic

heart failure as well as non-residents of Western Kenya were excluded.

All children presenting to the hospital aged 6-11 years were eligible for participation and were screened for suitability using a validated parent/caregiver screening questionnaire used originally in the ISAAC studies^{2,13-16}. The questionnaire used for 6-7 year olds in the ISAAC studies was used. Children identified as asthmatic from the screening had data collected using a questionnaire which mainly looked for background variables as well as parental knowledge and beliefs concerning asthma treatment.

Data was entered into Microsoft Access. It was then exported to STATA Version 13 for analysis. Descriptive statistics were generated from the baseline study. We assessed knowledge on asthma by scoring individual questions with 1 score for correct response and dichotomized to ≤ 9 and ≥ 10 as not knowledgeable and knowledgeable respectively. Attitude questions were individually scored. The Chi-square test was used to test for categorical variables association. Level of significance was set at 0.05.

Clearance to carry out the research was granted from the ethics review committee of MTRH/College of Health Sciences, Moi University. Enrolled participants gave informed consent.

Results

A total of 116 families took part. The median age of the children was 8.3 years. Most parental respondents were mothers (n=83, 71.6%) from urban settings (n=85, 73.3%) who had attained at least secondary school education (n=109, 94%). The results are summarised in Table 1.

Whilst self-reported asthma knowledge was high, with less than one-fifth of caregivers rating themselves as 'not knowledgeable' (n=23, 19.8%) just less than one third of respondents accepted that their child had asthma (n=38, 32.8%). At least 50.9% perceived their child's illness to be well controlled and interestingly 66 (56.9%), acknowledged that they had drugs at home to control their child's symptoms. This is shown in table 1.

Table 1: Baseline characteristics of children/caretakers

Variable	Freq	%
Age of child in years	n=116	
Median (IQR)	8.33 (7,10)	
Gender of child		
Male	65	56.00%
Female	51	44.00%
Relationship with child		
Mother	83	71.60%
Father	20	17.20%
Other	13	11.20%
Residence		
Urban	85	73.30%
Rural	31	26.70%
Season recruited		
Wet	65	56.00%
Dry	51	44.00%
History of asthma in family		
Yes	72	62.10%
No	44	37.90%
Highest education level of caretaker		
None	3	2.60%
Primary	4	3.40%
Secondary	21	18.10%
Tertiary college	43	37.10%
University	45	38.80%
Asthma drugs at home for child		
Yes	66	56.90%
No	50	43.10%
Health provider talked about asthma action plan		
Yes	30	25.90%
No	86	74.10%
Caretaker perception on child's control level		
Well controlled	59	50.90%
Partially controlled	49	42.20%
Poorly controlled	8	6.90%
Acceptance that child has asthma		
Yes	38	32.80%
No	78	67.20%
Perceived knowledge on asthma		
Knowledgeable	43	37.10%
Knows a little	50	43.10%
Not knowledgeable	23	19.80%

When questions measuring knowledge on asthma among the caretakers were analysed, 84(72.4%) were determined to be knowledgeable as they answered at least half of the questions correctly.

Generally the presentation of asthma was well identified. Breathlessness (difficulty in breathing) was the least identified as the presentation of asthma by 84 (72.41%). Caretakers were able to identify correctly that chemicals with bad smell, 66 (56.9%), cold air, 101 (87.07%), and strong perfumes, 73 (62.93%) trigger asthmatic attack. Few individuals were able to identify that emotional stress, 25 (21.55%), exercise, 55 (47.4%) and cockroaches 13 (11.21%) and aspirin/ibuprofen, 11(9.48%) trigger asthmatic attack. At least half, 50.86% of the participants

were able to pick the correct definition of asthma. However, most participants were not able to identify the cause of asthma.

We subjected the caretakers to a set of questions to establish their perception on asthma treatment. Most of the caretakers preferred syrups for inhalers in the management of asthma. Specifically 72(62.1%) felt broncho dilatation is best achieved by syrups while only 34(29.3%) would prefer inhalers on their child given choice. Interestingly though, only 39 (33.6%) feared inhalers. Concerning controller medications, only 36 (31.0%) felt daily medications were necessary in asthma care. More than half (55.2%) felt not enough information concerning their child's condition had been addressed by health care workers. This is shown in detail in table 2.

Table 2: Perceptions on asthma treatment by caretakers

Variable	Freq	%
Bronchodilator treatment is best achieved when given as:		
Inhaler	44	37.90%
Syrup	72	62.10%
Given a choice caretaker prefers inhaler over syrup:		
Yes	34	29.30%
No	82	70.70%
Believe that inhalers are for the seriously sick:		
Yes	75	64.70%
No	41	35.30%
Fear inhaler as not approved by other people:		
Yes	39	33.60%
No	77	66.40%
No need of daily drugs, given with wheezing		
Yes	80	69.00%
No	36	31.00%
Child 6-11 years requires a spacer to use inhalers:		
Yes	54	46.60%
No	62	53.40%
Feeling enough information concerning child		
Yes	52	44.80%
No	64	55.20%
Concerns/fears addressed by health workers:		
Yes	60	51.70%
No	56	48.30%

On determining whether there are any predictors of knowledge from the baseline characteristics, acceptance that child has asthma and acknowledgement that there were drugs at home to help with attacks were positively associated with being knowledgeable at p value of 0.015 and 0.009 respectively. This is shown in detail in table 3.

Table 3: Association between caretaker's baseline characteristics and knowledge

Variable	Knowledgeable		p-value
	No	Yes	
Gender of child			
Male	15 (23.1)	50 (76.9)	0.22
Female	17 (33.3)	34 (66.7)	
Relationship to child			
Mother	25 (30.1)	58 (69.9)	0.383
Father	3 (15)	17 (85)	
Other	4 (30.8)	9 (69.2)	
Residence			
Urban	25 (29.4)	60 (70.6)	0.466
Rural	7 (22.6)	24 (77.4)	
Season recruited			
Wet	11 (16.9)	54 (83.1)	0.004
Dry	21 (41.2)	30 (58.8)	
History of asthma in family			
Yes	17 (23.6)	55 (76.4)	0.22
No	15 (34.1)	29 (65.9)	
Education level of caretaker			
None	0 (0)	3 (100)	0.412
Primary	0 (0)	4 (100)	
Secondary	8 (38.1)	13 (61.9)	
Tertiary college	11 (25.6)	32 (74.4)	
University	13 (28.9)	32 (71.1)	
Drug at home to relieve attack			
Yes	12 (18.2)	54 (81.8)	0.009
No	20 (40)	30 (60)	
Talk about asthma action plan			
Yes	7 (23.3)	23 (76.7)	0.545
No	25 (29.1)	61 (70.9)	
Recurrent wheezing			
Well controlled	16 (27.1)	43 (72.9)	0.565
Partially controlled	15 (30.6)	34 (69.4)	
Poorly controlled	1 (12.5)	7 (87.5)	
Acceptance child has asthma			
Yes	5 (13.2)	33 (86.8)	0.015
No	27 (34.6)	51 (65.4)	
Caretaker knowledge on asthma			
Knowledgeable	7 (16.3)	36 (83.7)	0.064
Knows a little	19 (38)	31 (62)	
Not knowledgeable	6 (26.1)	17 (73.9)	

Discussion

Our analysis of this cohort of caretakers shows that the level of knowledge was fairly high with 72.4% answering

more than half of the questions correctly. In a large study from China, 51.34% of the parents scored less than half for the questions assessed¹⁷. In Egypt, Tantawi H. et.al

recorded a pre-intervention knowledge of 18.75%¹⁸. Our populations had 94% of the participants having attained secondary education. This could partially be responsible for the high level of knowledge. Our study again was carried out in a largely urban set up and included both the private wing and the general wing of the hospital. The private wing of the MTRH is the one where hospital staff and their dependents are attended to. This could have an influence as most of the staff are health workers.

Although inhalers are advocated world over, our study shows that the parents/guardians preferred using syrups for their children. We assessed for this perception by asking three different questions which had similar results. While several possibilities could be responsible for this, it shows that the challenges in different regions may differ as it pertains asthma care. While this same group appeared knowledgeable, they prefer syrups which are associated with more side effects and are less effective. Similarly, although preventer medications which are given daily are the cornerstone of asthma medications², only 69% of our study participants felt they were necessary. This could mean we have unmet needs both for the parents and health workers which have been shown can occur in different cultures/ regions¹⁹.

Among other things, WHO has identified that ability to describe correctly asthma treatment is one of the pre-requisites for effective asthma care²⁰. For patients to have proper knowledge, asthma education is important. It has to be actively provided²¹. The questions this raises are we attempting to focus on the patients while the bigger gap might be with the health workers? In our sample, only about half of the participants were satisfied with the information they received from the health workers. There is evidence that better control is associated with perceived satisfaction by the patients/ care takers⁵. It is with this in mind that these results at a national referral hospital, which is home to one of the best medical schools in the region should be worrisome. Are we doing enough as far as basic education to health workers who see children with the possibility of asthma is concerned? On testing for association of knowledge and selected baseline characteristics, having reliever medications as well as acceptance that child had asthma by the parents/ caretaker was associated with better knowledge of asthma. This might mean that health workers need to take up the mantle of educating care takers of children with

asthma on the disease. There is widespread concern that asthma stigma is worsened by the health workers as they do not attempt to tell a patient that they could be having asthma. Although there is no asthma registry at this hospital, when we screened children who came hospital for whatever reason, at least 10% met the criteria using the ISAAC questionnaire that they were suffering from asthma. However, a good number either were not aware or did not acknowledge that their child had asthma. Only 32% of the parents/caretakers felt their child had asthma. The physician's diagnosis of asthma to a child has been shown to be a strong determinant of asthma treatment²². When a child has not received a diagnosis of asthma, they are less likely to be on any asthma medications. In our study, we found that 56% said they had a medication at home to relieve attacks. This is higher than the 9% that Maziak et.al found. However, our number included unacceptable medications like syrups. While other studies have found that education level is a main determinant of level of knowledge¹⁷, we did not find this association. Notable however, is that, in our cohort a small minority (6%) had lower level of education.

Conclusion

While inhalers have been shown to work and are advocated for by national and international guidelines, most caregivers perceive syrups to be better. This is despite having good basic knowledge on asthma. This study provides evidence that there is need to address asthma perceptions among parents/caretakers in resource poor setting which is likely to improve control.

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Conflict of interest

The authors declare no conflict of interest.

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