ORIGINAL ARTICLE

Unravelling Myths and Knowledge of Paediatric Asthma Among the General Population in an Urban City in Southeast Asia

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ABSTRACT

Introduction: Paediatric asthma, a prevalent chronic disease among children in Malaysia, can have its morbidity reduced through effective education. This study aims to assess the knowledge and perceptions of childhood asthma in the Malaysian general population. **Materials and methods:** A prospective study was conducted among visitors attending paediatric wards and clinics at the Institute of Paediatric Hospital Kuala Lumpur. Participants, who gave their consent, completed validated questionnaires in written form that evaluated their knowledge of asthma symptoms, triggering factors, medication, prevention, and myth perception. A higher score indicated a deeper understanding of asthma. **Results:** The study included 200 participants, predominantly female (88%), with a median age of 35.5 years. Among them, 12% were asthmatics, and 36% had a family member with asthma. The primary source of asthma information was electronic media (82%). The average score for knowledge of asthma symptoms, triggering factors, medication prevention and myth was 62.13% (SD 17.6). 62.88% (SD 16.3), 56.7% (SD 16.5), 82% (SD 15.1) and 57.8% (SD 15.4) respectively. Asthma myth perception and source of asthma information from family members were strongly related (p-value of 0.042). **Conclusion:** The general population exhibits an average understanding of asthma, comparable to findings from previous studies in other countries. This highlights the need for targeted educational interventions to dispel myths and enhance asthma knowledge.
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INTRODUCTION

Asthma is one of the most common chronic diseases in childhood around the world and the prevalence have increased over the past two decades (1). Based on the Global Burden Disease Study (GBD), it was estimated 262 million people affected by asthma in 2019 with an age-standardized rate of 3416 cases per 100 000 population.The Global Asthma Report 2022 showed the burden in terms of prevalence and severity of disease is higher in children (9.1%) and adolescent (11%) compared to adult (6.6%).

Educational initiatives have been proven to mitigate the effects of asthma in both adults and children (GINA 2016). Numerous studies suggest that these programs significantly enhance the management of paediatric asthma (1,2). For instance, a recent study by Eakin et al. demonstrated the efficacy of a home-based family educational program in improving asthma control, reducing the need for oral corticosteroids, and decreasing hospitalizations (2). However, the heterogeneity in the intensity, focus, and outcome assessments of these programs has led to considerable clinical diversity.

Despite concerted efforts to enhance asthma education, a significant proportion of parents and caregivers still possess only average knowledge about the condition. For example, Al Otaibi et al. found that 79.6% of parents in Saudi Arabia have moderate knowledge of childhood asthma, (3) while Roncada et al. discovered that only 30% of parents had acceptable levels of asthma knowledge (4).

In Malaysia, educational strategies targeting various levels - from healthcare personnel to parents and the general public - are implemented using a multimodal

approach. Despite the significant impact of asthma, the understanding and perception of childhood asthma among the Malaysian general population, particularly in urban areas, remain unclear. This study, therefore, aims to evaluate the knowledge and perceptions of childhood asthma in urban populations, where access to educational programs is presumably higher. We hypothesize that the general population's understanding of childhood asthma remains inadequate, prompting this investigation into their knowledge and perceptions of the condition.

MATERIALS AND METHODS

We conducted a prospective, cross-sectional study from 1st October 2018 until September 2019. The study involved visitors (i.e. parents, caregivers, relatives, and family friends) to the paediatric wards and clinics at the Institute of Paediatric Hospital Kuala Lumpur, aged over 18 years, who could understand and write in Malay. Medical personnel and foreigners were excluded from the study. The convenience sampling method was used to obtain good number of participants in a short period of time. This study was granted ethics approval by Medical Research and Ethics Committee Malaysian Ministry of Health with registration number NMRR-18-3095-43368.

The sample size was determined based on Rodrнguez et al.'s Asthma Knowledge Questionnaire, which found that 16% of parents had a high knowledge of asthma (5) with a 5% margin of error, the minimum required sample size was calculated to be 200 using an Epi epidemiologic calculator. A non-random, convenience sampling technique was employed to gather the sample. Consenting participants were given a validated Malay version of the Asthma Knowledge Questionnaire by Rodrнguez et al. to complete. The questionnaire assessed five components of asthma knowledge: symptoms, triggering factors, medication, prevention, and myth perception. Responses were recorded on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Higher total scores, calculated out of 85 and converted to percentages, indicated greater asthma knowledge. These percentages were further categorized into poor (0-35%), moderate (36-69%), and good (70-100%) knowledge levels.

Data analysis was performed using SPSS version 27. Categorical variables were expressed as frequencies and percentages, while continuous variables were described using mean and standard deviation (SD). Chi-square and student T-tests were applied as appropriate. A p-value of less than 0.001 was considered statistically significant.

RESULTS

The study involved 200 participants, predominantly female (88%), with a median age of 35.5 years. A majority had a solid educational background, with 40% having completed secondary school and 52% having undergone tertiary education. Approximately 60% of the respondents fell into the B40 category in terms of monthly household income, as per the Household Income and Basic Amenities Survey 2019 by the Statistics Department of Malaysia. Among the respondents, 12% were asthmatics, and 36% had children with asthma. Only 17% had previously attended an asthma-related talk. (Table I).

Table I: Demographic characteristics of respondents

Characteristic	Number of respondents, (n =200)	%
Gender		
Female	176	88
Male	24	12
Highest Education Level		
Secondary school	79	40
College/ University	103	52
Household Income category*		
B40 (<RM4849)	119	59.5
M40 (RM4850- RM10,959)	50	25
T20 (RM>10,960)	6	3

*Source of categorization:
Household income and basic amenities survey 2019, Statistic Department Malaysia.

The primary source of asthma information for most respondents was electronic media (82%), followed by medical personnel (76%), family members, magazines, newspapers, and books. (Table II).

Table II: Background of respondents and their source of asthma information

Characteristic	n (200)	%
Asthmatic respondent	24	12
Respondent has an asthmatic child	72	36
Respondent had attended a talk/ seminar on asthma prior to the study	34	17
Source of asthma information		
Book	115	57.5
Magazine	105	52.5
Newspaper	99	49.5
Medical Personnel	152	76
Family members	119	54
Electronic Media	164	82

The study explored five main components of asthma knowledge, with the average scores in percentages being: asthma symptoms (62%), triggering factors (62.8%), medications (56.7%), prevention (82%), and myth perception (58%). Asthmatic respondents demonstrated significantly higher knowledge scores for medications and triggering factors compared to non-asthmatic respondents, with p-values of 0.005 and 0.015, respectively. The score for knowledge of asthma medications was 68.4 ± 4.2 among asthmatics, compared to 56.7±2.7 among non-asthmatics. For knowledge of asthma-triggering factors, the score was 68.14±3.9 among asthmatics, compared to 58.8±2.5 among non-asthmatics. A significant association was

found between myth perception and family members as a source of asthma information (p-value of 0.042).

Comparison were made and found there was significant association between levels of education and household income with knowledge of childhood asthma (p-value of 0.001 and 0.0049 respectively).(Table III).

Table III: Comparison of asthma knowledge among asthmatic respondents and non-asthmatic respondents

Variable	Mean +_ SE	p value
Gender		
Male	65.98 +_ 2.19	0.087
Female	62.37 +-1.30	
Highest education		
Secondary School	61.24+-1.75	0.001
College/ University	67.12 +-1.53	
Household Income category		
B40	61.93+-1.12	
M40	60.95+-1.65	0.0049
T20	69.64+-3.33	

DISCUSSION

The Crucial Role of Asthma Education in Asthma Management

Asthma education is a pivotal initiative that has been demonstrated to significantly enhance asthma outcomes and decrease mortality and morbidity. A Cochrane systematic review revealed that asthma education not only improves lung function but also reduces school absenteeism, healthcare utilization, and asthma symptoms (6). Moreover, a meta-analysis involving 37 randomized controlled trials on the impact of asthma educational interventions for children aged 2 to 7 years old concluded that such education leads to a reduction in both average emergency department visits and hospitalizations (7). This was further corroborated by another Cochrane review which found that asthma education directed at parents and/or children who recently had an emergency department visit for asthma was associated with reduced hospital admissions and a lower risk of subsequent emergency department visits (1).

Despite its proven effectiveness, there are few studies assessing the knowledge of parents or patients on asthma before, after, or following asthma education interventions. This highlights the need for repetitive asthma education with each clinic visit. However, questions about the longevity of this knowledge and how long a person can retain this information after an education intervention remain to be answered by future research.

The Influence of Technology on Asthma Information Dissemination.

With the advancement of technology, we found that 81% of parents or caregivers obtain their information on asthma via social media. The widespread and easy availability of internet access makes this the primary source of information. However, a study by Heneiman B et al. on the content analysis of promotional material for asthma-related products and therapies via Instagram showed that only 32.6% of the contents were consistent with GINA guidelines (8). This suggests a high likelihood of parents or caretakers receiving incorrect information on asthma through this medium. Furthermore, there is no specific authorized agency to supervise the information contents unless it is reported as false to the higher authority by the public or reader.

Understanding Asthma: A Knowledge Gap

This study, similar to others, (3-5) found that the parents and/or caregiver of an asthmatic child have an average understanding of asthma, including knowledge of symptoms, triggering factors, medications, and myths about asthma. The knowledge score in percentage ranges from 57% to 62%, categorized into three levels: poor (score 0-35%), moderate (score 36-69%), and good knowledge (score 70-100%). Interestingly, knowledge of asthma prevention scored well at 81%. Whether this reflects an emphasis on prevention in the asthma education provided is uncertain. Further study is needed to investigate this area and determine if our approach to asthma education intervention needs to be more focused on other areas where knowledge is lacking.

Factors Influencing Asthma Knowledge

A Swedish study found that low-level parental education was associated with a threefold increase in odds of problematic severe asthma (90). In this study, we found that parents or caregivers with a high level of education have significantly better asthma knowledge. This suggests that parents with a high level of education are likely to have better opportunities to seek knowledge and are better at understanding and interpreting information regarding asthma disease and treatment (10).

Low parental education serves as an indicator of low socioeconomic status. Numerous studies have established a correlation between socioeconomic factors and the level of asthma control in children (11). Similarly, this study found a significant association between higher household income and improved asthma knowledge. These findings suggest that a one-size-fits-all approach to asthma education may not be sufficient. Instead, a more tailored approach, taking into account the unique needs and circumstances of different families, may be necessary to achieve optimal asthma control.

Limitation

This study has certain limitations, primarily due to incomplete responses from several participants, which could be attributed to factors such as low self-esteem. The convenience sampling method used in this study is probably will not represent the population accurately. This study also captured only few sociodemographic variables mainly based on what has been described on previous study. Other sociodemographic data shall

be added to widen the view on factors affecting the knowledge for example working hours or living situation. Despite this, the authors are confident that the use of recognized and validated questionnaires, tailored to the population under study, enhances the robustness of the research. This approach is believed to effectively bridge the gap in asthma knowledge and inform necessary interventions.

CONCLUSION

This study underscores that the level of asthma knowledge in the general population, including among parents of children with asthma, is not at a satisfactory level. This holds true even for those who have a moderate understanding of the condition. The findings highlight the pressing need for further interventions to enhance asthma knowledge among the general population and parents of asthmatic children. This necessity persists regardless of the urban setting of the study, indicating that geographical location does not diminish the importance of such educational initiatives.

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