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KNOWLEDGE AND RISK FACTORS OF HEALTH LITERACY IN CHILDREN WITH ASTHMA

Dr. Zaheer Ahmed[1], Dr. Hina Shafiq[1], Dr. Mughees Ashraf[2]
[1]Allied Hospital Faisalabad
[2]District Headquarters Hospital, Vehari

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Abstract:
Introduction: *Almost 10% of children under the age of 18 years have asthma, with increasing disease prevalence and morbidity disproportionately affecting minority children in urban areas and children in lower socioeconomic groups. Asthma is one of the most common chronic diseases in the pediatric population.* ***Objectives:*** *The basic aim of the study is to find the knowledge related to health literacy in children with asthma in a local population of Pakistan.* ***Methodology of the study:*** *This cross sectional study was conducted at Allied Hospital Faisalabad during June 2019 to January 2020. Children aged 6–12 years with physician-diagnosed asthma, were eligible for this study. Children were interviewed in the clinic immediately after the healthcare visit. Children completed spirometry tests the same day. Parents provided demographic information and completed the Test for Functional Health Literacy in Adults (TOFHLA), the Asthma Knowledge Quiz (AKQ), and the Juniper Asthma Control Questionnaire (ACQ).* ***Results:*** *The scores were moderately correlated (ρ=0.334, $p<0.0001$). Furthermore, increased parent asthma knowledge is associated with better child asthma control. As the AKQ score increased by one point, ACQ scores decreased by 0.091 ($p<0.05$).* ***Conclusion:*** *It is concluded that HL is a critical requirement for health care providers to achieve improved children health outcomes and is crucial to health care practices supporting asthma care, not only for parents or caregivers but also for children.*

Corresponding author:
Dr. Zaheer Ahmed,
Allied Hospital Faisalabad

QR code

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INTRODUCTION:

Almost 10% of children under the age of 18 years have asthma, with increasing disease prevalence and morbidity disproportionately affecting minority children in urban areas and children in lower socioeconomic groups. Asthma is one of the most common chronic diseases in the pediatric population. The prevalence of asthma, particularly among children, has been increasing in many countries, and it remains a burden on health care systems and society due to workplace productivity losses and family disruption [1]. Minority children have greater asthma symptom severity, sleep disturbances, and activity limitations than white children. Furthermore, black and Hispanic children miss more school and have more emergency department (ED) visits. Hospitalizations are highest for inner-city poor children. Additionally, each year, one-third of all children with asthma are treated in an ED for asthma, with many visits being unnecessary, due to poor asthma home management [3].

Mandated federally funded programs have improved healthcare access, but have not eliminated disparities for those most vulnerable to poor health outcomes. Among Medicaid-insured children, black and Hispanic children have worse asthma status and more hospitalizations, and are less likely to use daily inhaled anti-inflammatory medications than white children. Medicaid-covered children are significantly less likely than non-Medicaid children to have asthma prescriptions filled or obtain refills, disparities not accounted for by prescribing variations. Even when filled, adherence to prescribed asthma medications remains low [4]. One possible source of these asthma disparities is the parents' understanding and use of health information, that is, the parents' health literacy. Studies among adults with asthma indicate that lower health literacy predicts worse asthma outcomes, medical decision making, knowledge, and self-management skills, such as correctly using a meter-dose inhaler and communicating with their healthcare provider. Parents need these same skills, as well as reading and numeracy skills, to manage their children's asthma successfully in order to achieve better asthma health outcomes [5].

Aims and objectives

The basic aim of the study is to find the knowledge related to health literacy in children with asthma in a local population of Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted at Allied Hospital Faisalabad during June 2019 to January 2020. Children aged 6–12 years with physician-diagnosed asthma, were eligible for this study. Children were interviewed in the clinic immediately after the healthcare visit. Children completed spirometry tests the same day. Parents provided demographic information and completed the Test for Functional Health Literacy in Adults (TOFHLA), the Asthma Knowledge Quiz (AKQ), and the Juniper Asthma Control Questionnaire (ACQ). We asked parents to report on symptoms, with the child available to consult. Lower scores indicate less impairment. Categorical classifications are: <0.75 adequately controlled asthma, 0.75–1.25 not well-controlled asthma, and >1.5 poorly controlled asthma.
Differences were considered statistically significant at $p<0.05$.

RESULTS:

The scores were moderately correlated ($\rho=0.334$, $p<0.0001$). Furthermore, increased parent asthma knowledge is associated with better child asthma control. As the AKQ score increased by one point, ACQ scores decreased by 0.091 ($p<0.05$). The multiple regression results compare scores on the TOFHLA, ACQ, and AKQ with demographics and asthma severity. TOFHLA scores were higher for whites ($p=0.003$), those with higher education ($p<0.0001$), and those with All Kids insurance (compared to private insurance; $p=0.022$). ACQ scores were higher for whites ($p=0.011$) and those rated by the healthcare provider with severe compared to mild ($p=0.004$) or moderate ($p=0.030$) persistent asthma. AKQ scores were higher for whites ($p=0.001$) and those with higher education ($p=0.002$).

Table 01: Multiple regression analysis of health literacy questionnaire

		Health literacy (TOFHLA)			Asthma control (ACQ)			Asthma knowledge (AKQ)		
			Regression model			Regression model			Regression model	
	n	Mean (SD)	Coefficient	p-Value	Mean (SD)	Coefficient	p-Value	Mean (SD)	Coefficient	p-Value
Religion										
Muslim	36	94.5 (4.6)		0.003	1.08 (0.96)		0.011	10.9 (1.1)		0.001
Non-Muslim	245	87.1 (10.2)	−6.06		1.67 (1.00)	0.52		10.0 (1.3)	−0.85	
Education										
≤High school	154	85.1 (11.6)	−6.51	<0.001	1.78 (0.98)	0.27	0.052	9.8 (1.3)	−0.56	0.002
>High school	127	91.8 (5.9)			1.36 (0.94)			10.4 (1.1)		
Income										
<$20,000	141	87.1 (10.3)		0.839	1.76 (0.94)		0.227	10.0 (1.2)		0.822
≥$20,000	95	90.1 (9.6)	−0.30		1.32 (1.00)	−0.18		10.4 (1.4)	0.04	
Insurance										
None	6	86.3 (14.8)	0.82	0.033	1.50 (0.48)	0.03	0.681	10.7 (0.5)	1.11	0.179
Medicaid	210	87.8 (10.1)	0.59		1.70 (1.00)	0.20		10.0 (1.3)	0.10	
All Kids	20	82.0 (11.5)	−6.73		1.48 (0.99)	0.01		9.9 (1.5)	−0.20	
Private	45	92.5 (6.1)			1.13 (0.87)			10.6 (1.2)		
Asthma severity										
Intermittent	13	84.9 (12.8)	−1.34	0.349	1.56 (0.78)	−0.67	0.034	9.6 (1.7)	−0.20	0.263
Mild persistent	106	87.6 (11.0)	−3.96		1.47 (0.88)	−0.68		10.1 (1.3)	−0.01	
Moderate persistent	136	88.6 (9.2)	−2.81		1.60 (1.04)	−0.50		10.2 (1.2)	0.30	
Severe persistent	24	89.7 (8.5)			2.11 (1.09)			9.8 (1.4)		

DISCUSSION:

Many factors influence HL. Sanders and colleagues suggested that to achieve improved understanding of the role of literacy in child health care, interdisciplinary collaboration of disciplines such as sociology, public health, education, psychology, nursing, pharmacy, health communications, health information, health services research, social marketing, and health economics should be promoted [6]. Furthermore, because of the dependent characteristics of children, studies on children' HL should consider the collective HL of individuals responsible for children's health care, including family members, school staff, and others [7].

We used two measures of asthma control for our primary outcome: the ACQ and provider ratings. Both have limitations. The ACQ questions were answered by the parent, with the child present and completing the spirometry measure. Previous studies have found that parents may not accurately report on their children's asthma, partly because they are not always with the child, especially school-age children such as in our sample. Providers' ratings of control are subjective and have been found to overestimate the improvement in asthma symptoms among their patients [8]. As children in this study were attending return visits, provider ratings may have been subjectively biased toward better control. This suggestion is strengthened by our finding that the majority (64%) of asthma control ratings was discordant, mostly due to a higher rating of control by the provider [9].

Similar to other disparity reports, we found higher rates of adequate health literacy among whites than African Americans. We also found race significantly related to ACQ and AKQ scores, with African Americans scoring worse on asthma knowledge and control. This may, in part, explain why African American children suffer disproportionate asthma morbidity and mortality, as well healthcare use [10].

CONCLUSION:

It is concluded that HL is a critical requirement for health care providers to achieve improved children health outcomes and is crucial to health care practices supporting asthma care, not only for parents or caregivers but also for children. This literature review demonstrated that the understanding of HL and asthma has markedly improved; however, few challenges have been identified.

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