

Parents Beliefs towards Asthma Medication in Saudi Arabia

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Abstract

Asthma is a chronic lung disorder in which inflammation causes swelling and narrowing of the airways, creating breathing difficulties that may range from mild to life threatening. Symptoms include shortness of breath, coughing, wheezing, and chest tightness (American College of Allergy, Asthma & Immunology). Although asthma is a lifelong condition that may vary in severity throughout the individual's life, it is reversible with relief (bronchodilator) medication and can be controlled with the regular use of controller medications—specifically inhaled corticosteroid (ICS).

Introduction

Worldwide, it is estimated that more than 300 million people suffer from asthma, with nearly 180,000 dying from the condition annually [1]. Although asthma affects people of different ages, it is more serious among children because it interferes with their physical and cognitive growth. Asthma is the most common chronic disease of childhood, with an increasing prevalence worldwide over the last few decades [2]. Globally, 17% of the world's children suffer from asthma. In Saudi Arabia, asthma among children is considered a serious public health concern, with between 10% and 25% of children affected [3]. Pediatric asthma rates are even higher in the Eastern Region of Saudi Arabia, with an estimated prevalence of 33.7% compared with 17.7% and 14.1% in the Central and Western Regions, respectively. This high prevalence has been attributed, in part, to the influence of climatic and environmental factors, such as high humidity and air pollution from the presence of oil and petrochemical industries in the area.

Pediatric asthma is associated with serious economic and emotional burdens in societies. Costs associated with asthma in children include the use of emergency care, hospitalization, and a high number of missed workdays for parents and schooldays for children with the condition. The most serious emotional burden is premature death [4]. The basis of current asthma management is the regular use of daily controller medication, specifically inhaled corticosteroids (ICS). ICS has been deemed very effective in large-scale trials over the past forty years. Nonetheless, healthcare professionals and patients have been slow to adopt these medications. This could be explained by the fact that ICS offers slow relief compared to bronchodilators, which work quickly. Despite their slower pace, ICSs are more effective in managing asthma and are safer than systemic corticosteroids [5].

Non-adherence to asthma controller medications remains a significant problem and is probably a major cause of uncontrolled asthma worldwide. Less than 50% of asthma controller medications are taken daily as prescribed by physicians [6]. Children rely upon their parents to make decisions regarding their health. Parents determine whether to take the child to the emergency room, as well as routine care appointments. Furthermore, parents bear the responsibility of following through with disease management plans, including providing and administering medications. In Saudi Arabia, adherence to asthma controller medication is markedly low among parents of children with asthma. Only 7.2% of Saudi Arabian parents adhere to their children's prescribed asthma controller medication plans [7]. This finding constitutes an important challenge in the management of childhood asthma in Saudi Arabia. It is therefore critical to understand factors influencing parental administration of their children's asthma controller medications.

Need for the study

Asthma is a serious public health problem worldwide. In Saudi Arabia, there are more than 2 million people suffering from asthma, including as many as 34% of the country's children. Both morbidity and mortality from asthma are high despite treatment that is effective for the majority of patients. The improvement of medication adherence is needed that has not been met, and effective ways to assess and address the problem must be implemented. Most studies report that adherence levels rarely exceed 50% among asthmatic patients [8]. Poor adherence to asthma medication causes substantial and unnecessary financial costs, reduction in quality of life, and increases in morbidity and mortality [9].

Because of the great social and economic impact of asthma on the community, this study is meaningful to the field of public health. Many clinicians and researchers recognize childhood asthma as a major public health issue. Adherence to controller medications in children with asthma is probably the most effective way for health care providers to reduce the burden of uncontrolled asthma. In order to improve medication adherence among parents, health care professionals must understand the factors that underpin parents' beliefs about asthma medication.

It is well known that beliefs influence health behavior. Previous studies have indicated that parental beliefs about asthma medications are significantly associated with medication adherence. These beliefs could either be negative (concerns about side effects or dependency on medications) or positive (feeling that the medications are necessary to improve health) [10]. In Saudi Arabia, there is a gap in literature addressing psychological factors associated with poor adherence to asthma medications among parents. Specifically, factors related to parental beliefs about asthma controller medications have not been thoroughly assessed. There is only one study that explored parental perceptions about asthma medications in Saudi Arabia. It is therefore important to collect data about beliefs and adherence, using an applicable theoretical

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framework. By doing so, medical professionals will be better equipped to help parents understand their children's medication and administer it consistently. Ideally, the result would be that parents administer medication properly, leading to better health in children and less social and economic burden on the community.

Purpose of the study

The purpose of this study was to explore parental beliefs about asthma controller medications and the association between those beliefs and medication adherence. The study explored factors influencing adherence to asthma controller medications among Saudi parents and guardians of children with asthma. The study utilized the Necessity-Concerns Framework (NCF). The goal of the study was to provide necessary information needed by health practitioners to develop effective interventions aimed at improving Saudi Arabian parents' adherence to asthma controller medications for their children.

Overview of research design and statistical procedures

A cross-sectional survey of parents of children with asthma was conducted in the Eastern Province of Saudi Arabia. Cross-sectional design was chosen, because this method is best for assessing a phenomenon (medication adherence) in a specific population through collecting and analyzing numerical data. The variable of interest was used to evaluate the participants' medical adherence to asthma medication plans. The study utilized the NCF as a theoretical framework, incorporating its constructs (necessity and concerns) throughout data analysis. A descriptive analysis was conducted to provide the sociodemographic characteristics of the study sample. For hypotheses 1 and 2, a correlation matrix illustrated the overall beliefs about medications for this population. Additionally, hierarchical linear regression was used to assess the relationship between medication beliefs and adherence for both the necessity and concern subscales. A two-sided alpha level of less than 0.05 was considered statistically significant [11].

Materials and Methods

The purpose of this study was to explore parental beliefs about asthma controller medications and the effect of those beliefs on medical adherence. The study explored the reasons underlying high and low adherence to asthma controller medications among Saudi parents/guardians of children with asthma using the Necessity-Concerns Framework (NCF). This chapter presents a detailed description of the methods used for the study, as well as study participants, study design, instrumentation, research variables, data collection, and data analysis and statistical procedures.

Study participants & setting

Participants were parents or guardians of children with asthma. All parents/guardians of children previously diagnosed with asthma and prescribed a minimum of one controller medication were eligible to participate. Participants were recruited from four pediatric outpatient clinics in the Eastern Province of Saudi Arabia and were at least 18 years old. Two of these clinics are specialized asthma centers, and the other two are community hospitals located in the cities of Dammam, Dhahran, Jubail, and Alahsa. Upon checking in for their children's appointments, the front desk receptionist asked parents/guardians if they were interested in participating in the research. Then, the receptionist checked if the parents fit the inclusion criteria, have resided in the Eastern Province for a minimum of one year to ensure the sample's homogeneity, at least 18 years old, their child has been diagnosed with asthma and at least taking one ICS medication.

Research Design

This study utilized a cross-sectional design. Survey research provides a numeric description of trends, attitudes, and beliefs of a population by studying a sample of that population using a questionnaire to collect data (Fowler, 2009). In this type of research, an investigator uses correlational statistics to measure the degree or the relationships between two or more variables or sets of scores [12-15]. Additionally, survey research has some advantages compared to other designs. It is relatively easy to administer to a large sample, cost effective, and a broad range of data can be collected (e.g., attitudes, opinions, beliefs, values, behavior, facts). In addition, parents were self-reporting, so the research assumes that they were generally telling the truth about their adherence and beliefs.

Instrumentation

Two primary instruments were used in this study with the permission of their original authors. The first was the Medication Adherence Report Scale (MARS)-Arabic Version. This questionnaire measures the frequency of behaviors deemed medically non-adherent. The instrument consists of six items intended to measure non-adherent behaviors and their frequency. Parents were asked to respond to statements such as "I forget to give the controller medication to my child" and "I give less than instructed" by rating the frequency with which these incidents occur. Their answers were scored, and the total of the scores from the six items was summed and divided by 6 to give a scale score ranging from 1 to 5. Higher scores indicate higher levels of self-reported adherence.

The Beliefs About Medications Questionnaire (BMQ)-Arabic Version was also used as an instrument in this study. A previously validated Arabic version of the MARS and the BMQ Specific was used to collect data about parents' beliefs regarding medication [16, 17]. The BMQ Specific is a validated instrument used to quantify patient or parent beliefs about specific medication for a particular illness. The instrument measures the perceived Necessity of treatment compared to the Concerns about treatment held by the individual. High Concern scores and low Necessity scores have been correlated with high levels of non-adherence in various chronic illnesses [18,19]. There were 11 questions in the questionnaire, and each is coded as either a Necessity belief (n) or a Concern (c). Participants must answer based on how much they agree or disagree with each statement. There were 5 necessity questions, such as "My child's health, at present, depends on this medicine" and 6 concern questions such as "I sometimes worry about long-term effects of this medicine". Each answer was based on 5-Likert scale (1=strongly disagree and 5=strongly agree). The total necessity score (divided by 5) and concern score (divided by 6) was calculated separately to give a scale score ranging from 1 to 5. The scores were then compared to see if the participants' overall view of their children's medications was that of necessity or concern.

Results

A total of 381 parents/guardians of children with asthma participated in this study, representing a 38% response rate. Data were collected over a six-week period from the four participating clinics. (Figure 1) shows the recruitment process and the response rate.

Characteristics of the study sample

Majority (68%) of the participants were males, mean age of the study sample was 36.10 years (SD=9.10), 71% were employed, 51.2% earned a monthly income between \$R10, 000 and 20,000 (US \$2700-\$5400).

Ninety-three percent were married, and half of the parents (49%) hold bachelor degrees. The mean family size was 4.92 (SD=1.82). The sample were almost equally diversified as urban residents (51%) and rural (49%). Majority of parents (80%) rated their children's asthma as mild, while only 20% (n=76) described asthma as moderate to severe asthma. The details of the participants' characteristics are presented in (Table 1).

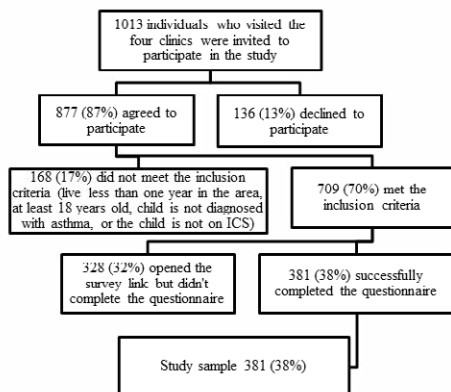


Figure 1: Recruitment process and response rate

	N	%	Mean	SD
Age			36.1	±9.1
Family Size			4.92	±1.8
Adherence			13.6	±5.03
Gender				
Female	121	31.8		
Male	259	68.2		
Level of Education				
Less than High School	32	8.4		
High School	50	13.1		
Associate	73	19.2		
Bachelors	187	49.1		
Graduate	39	10.2		
Marital Status				
Divorced	21	5.5		
Married	355	93.2		
Widowed	5	1.3		
Place of Residency				
Rural	188	49.3		
Urban	193	50.7		
Employment Status				
Employed	272	71.4		
Housewife	35	9.2		
Retired	19	5.0		

Self-Employed	25	6.6		
Student	30	7.9		
Monthly Income				
< \$R10,000	153	40.2		
\$R10,000 to \$R20,000	195	51.2		
> \$R20,000	33	8.6		
Medication Adherence				
Adherent (≥ 20)	42	11.0		
Non-adherent (<20)	339	89.0		
Asthma Severity				
Mild	305	80.1		
Moderate to Severe	76	19.9		
Concern about Medication				
Mild	101	26.5		
Strong	280	73.5		
Necessity				
Mild	172	45.1		
Strong	209	54.9		
and	and	and	and	and

Table 1: Descriptive characteristics of the study sample (n=381)

Discussion

The primary aim of this study was to explore parental beliefs about asthma controller medications and the association between those beliefs and medication adherence. Further, the study assessed the necessity-concern framework (NCF) as an explanatory model of adherence to daily asthma controller medication among Saudi Arabian parents of children with asthma. First, the current study evaluated the relationship between parental concerns and their adherence to controller medications of their children with asthma. Second, the relationship between medication necessity and parental medication adherence was evaluated. The main findings of this study revealed a relatively low medication adherence among parents of children with asthma and showed that necessity beliefs were significantly associated with parental adherence to controller medications of their children with asthma. To the best of the author's knowledge, this is the first study to assess the relationship between parents' medication beliefs and parent-reported medication adherence, utilizing a validated theoretical framework in Saudi Arabia.

Conclusion

Using the NCF as a theoretical framework, the study findings showed that the majority (89%) of participants had a low medication adherence. This study revealed poor medication adherence among Saudi Arabian parents of children with asthma. Findings of this study indicated that both the beliefs about the necessity of the controller medications and the place of residency (POR) predicted parental adherence to asthma controller medication, while beliefs relating to concern about the adverse effects of the controller medications was not a significant predictor of adherence. However, it is noteworthy to emphasize that

the high percentage (74%) of concern among parents poses a clinical significance that should be taken into account when addressing the non-adherence to asthma controller among parents. Non-adherence is often a hidden problem. Parents may be reluctant to express their doubts or concerns about controller medications of their children with asthma and to report non-adherence, perhaps because they fear that the doctors will perceive this as a lack of faith in them. Therefore, the first step toward facilitating adherence is to take a 'no-blame' approach, and encourage an honest and open discussion to identify non-adherence, and the reasons for non-adherence among parents. Efforts to support adherence should be tailored to the needs of the individual addressing perceptions (e.g. necessity beliefs and concerns) as well as practicalities (e.g. capacity and resources). Furthermore, the study revealed that parents with accepting and ambivalent attitudes had higher adherence rates than those with skeptical and indifferent attitudes. This study provides support for the utility of the NCF in exploring parental beliefs pertaining to asthma controller medications and their influence on medication adherence in the Saudi Arabian population. Similar support for the utility of the NCF has been reported in other populations in the United States and the Netherlands.

Finally, findings from this study may provide a foundational platform for future research to explore any additional potential factors which may influence parental medication adherence. Additionally, data from this study may be utilized to design effective intervention programs aimed at improving medication adherence among parents of asthmatic children in Saudi Arabia. Ultimately, improving medication adherence leads to better health outcomes, which then minimizes health care service utilization and decreases overall health care costs.

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