

Parents' Views toward Designing a Health Education Program for Management of Bronchial Asthma among School-Age Children



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ABSTRACT

Background: Childhood bronchial asthma is a prevalent global respiratory issue that is worsened by urban development in Saudi Arabia, highlighting the need for effective health education and professional involvement. **Aim:** This study aimed to explore parents' views toward designing a health education program for the management of bronchial asthma among school-age children. **Method:** A phenomenological study design was used as part of a Delphi design. The study was conducted in Dhurma's primary healthcare centers. The study employed convenience sampling for participant recruitment. The researchers involved 16 parents of children with bronchial asthma in the study. Two tools were utilized to collect parents' demographic and occupational characteristics and their views regarding the educational program. **Results:** Among the parents, there was an equal distribution between fathers and mothers. The findings revealed a high willingness among all participants to engage in educational initiatives focused on enhancing asthma management. **Conclusion and recommendations:** The study revealed a strong collective enthusiasm for educational initiatives aimed at improving asthma management, with participants optimistic about the program's potential benefits. It is recommended to implement a structured health education program focusing on bronchial asthma for the parents using multimedia, easy-to-use, and understandable strategies.

Keywords: *Bronchial Asthma, Health Education, School-Age Children*

Introduction

Bronchial asthma is considered the most common noncommunicable respiratory disease and poses a significant global public health challenge for the healthcare systems, particularly in children. It is a chronic inflammatory condition of the airways that affects school-aged children, characterized by recurrent wheezing, coughing, chest tightness, and varied airflow restrictions (Sultana, Ghani, Smith, Ashraf & Bashir, 2022; Alomary et al., 2022).

It has a major impact on school-age children's academic achievement and quality of life. Designing successful therapies requires an awareness of the prevalence of asthma and the difficulties faced by school-age children (Qin et al., 2022). Although the precise etiology of asthma is unknown. It is a multifactorial disease that originates in children during the development of the respiratory system. It is caused by the presence of a positive family history, exposure to environmental factors such as dust and smoking, and the presence of respiratory infections such as the common cold (Cleveland Clinic, 2023; Harris et al., 2019).

Asthma is among the most prevalent chronic diseases in Saudi Arabia, with its occurrence rising recently. The overall prevalence rate ranges from 9.5% to 13.4%. According to the Saudi Initiative for Asthma (SINA 2016), between 8% and 25% of children are affected by asthma. This rise in incidence can be linked to various factors, including rapid modernization, heightened urbanization, and enhanced living conditions (Alhazmi et al., 2023; Gohal et al., 2024).

Healthcare providers must teach children and their parents about asthma management and the effective usage of inhalers to deliver high-quality care. One of the most crucial parts of the medical team is the nurses. They serve at all levels in healthcare institutions, and they are essential in helping sick children receive care and education (Metwally, El-Dakhkhny, Amer, & Bassam, 2019).

Therefore, health education aims to increase parents' awareness regarding asthma management to be able to provide care and support for their children. Patient education in asthma self-management has evolved as a therapeutic intervention to assist parents and kids in

recognizing and managing their asthma and, ideally, becoming proactive, self-sufficient participants in their asthma care (Mersal & El-Awady, 2018).

Health education is an effective method for managing asthma and reducing the length of stay in the hospital and clinic visits. The educational process is more successful when both parents/guardians and children participate than when just the kids do (Harris et al., 2019). Therefore, this study aimed to explore parents' views regarding designing a health educational program regarding asthma management among school-age children.

1.1. Aim of the study

This study aimed to explore parents' views toward designing a health education program for the management of bronchial asthma among school-age children.

1.2. Research Question

1. What are the views of the parents toward designing a health education program for the management of bronchial asthma among school-age children?

2. Method

2.1. Study design:

The study utilized a phenomenological study design

2.2. Setting:

This study was conducted at four primary healthcare centers in Dhurma in the Kingdom of Saudi Arabia, including the following: -

1. Dhurma Healthcare Center
2. Al Moqbel Palaces Healthcare Center
3. Jaww Healthcare Center
4. Al-Jafora Healthcare Center

2.3. Participants and Sampling

Participants of this study included the end beneficiaries of the intended health education program, which are parents of children with bronchial asthma. A convenience sampling technique was used to recruit 16 parents of children with bronchial asthma, according to Junger, Payne, Radbruch, Brearly., 2017, to explore their opinions about the intended health education program.

2.4. Data Collection Tools:

The researchers developed two tools for data collection after reviewing the literature.

Tool I: Sociodemographic and occupational characteristic self-administered questionnaire:

This tool was used to collect demographic and occupational characteristics of the parents, such as age, gender, educational level, relationship with the child, occupation, nature of work, and income.

Tool II: Parents' views, a semi-structured interview questionnaire:

This tool was used to explore parents' views toward the intended health education program regarding the management of bronchial asthma among school-age children through six open-ended questions.

2.4.1. Validity and Reliability

Testing the validity of the data collection tools was conducted by a jury that involved 5 experts in research methodology and public health. The jury examined the content and rigors of the semi-structured interview questionnaire.

2.5. Pilot Study:

A pilot study with 10% of the study sample (two parents) who were excluded from the main study. This pilot study was used to assess the clarity, reliability, and application of the study tools, as well as the time necessary for data collection.

2.6. Data Collection Process:

The researchers conducted interviews with each participant individually from June 2024 to November 2024. The interview time ranged from 15- 20 minutes, and the responses were recorded. The interview started with an explanation of the study's aim and the demographic characteristics of participants. For obtaining responses for each question, the researcher asked each question directly and used probing discussions to encourage participants' responses.

2.7. Statistical Analysis

Statistical analysis was done according to the most current, reliable, and valid statistical methods. The collected data were coded, entered, and analyzed on a personal computer using the SPSS Statistical Product and Service Solutions (SPSS) program version 20. Categorical variables were described using frequencies and percentages. Continuous variables were presented as arithmetic mean \pm SD (standard deviation). Qualitative data were illustrated by thematic analysis.

2.8. Ethical considerations:

An official letter from the faculty of nursing at Mansoura University was issued to the appropriate authorities of the Directorate of Dhurma Region in the Kingdom of Saudi Arabia to obtain approval for conducting the current study.

The Research Ethics Committee, Faculty of Nursing, Mansoura University, provided the approval (IRB).The researchers obtained informed consent from participants after being informed about the purpose of the study and assured them that the collected data would be used confidentially and anonymously for research purposes.

3. Results:

Table 1 presents parents' demographic and occupational characteristics: The results show that 68.75% of parents were aged between 25 and less than 35 years, with a mean age of 32.30 (± 4.1) years. Half of the participants were fathers, while the other half were mothers. A total of 62.5% were highly educated. All participants were employed, with 50% working full-time and the remaining working part-time. Additionally, 75% reported having sufficient income.

Box A represents a summary of the main themes for qualitative findings of the parents' views toward the design of the educational program. This part is illustrated in the six main themes. The themes identified from the interviews were organized into six main themes, namely, content, teaching methods, multimedia required, methods for an effective educational program, skills acquired, and the ease of the program. (**Box A**).

Content of a health education program.

The majority of parents ($n=14$) wanted to know how to deal with an asthma attack immediately after it occurs, educate everything related to caring for a child with asthma, common triggers and factors that worsen symptoms, and manage it, including medical management and self-management. "... I preferred to obtain all important knowledge about asthma". "... I need to know how to deal with my child when the attack occurs". "...In my opinion, my child needs to deal with asthma with himself or when he in the school". "...medication adherence of asthma is very

important, so the management is important knowledge to be include in this program"

Teaching methods

Parents preferred educational programs implemented through lectures and workshops ($n=11$). "... I preferred implementing the program through an interactive lecture, which included dissection with other mothers and a health educator..." "... I preferred implementing the program through a periodic workshop, which included training about dealing with asthma."

Multimedia required

Parents preferred a variety of media, such as pictures, videos, and educational brochures ($n=13$). "... I interested in watching videos toward the health advice". "... preferred using pictures rather than text". "I preferred Borchers to explain knowledge regarding asthma."

Methods for an effective educational program

Most parents preferred using simple, easy-to-understand advice in the Arabic language, repeating the program periodically every 6 months using scientific visual material online ($n=15$). "... I prefer the Arabic language". "...I view that, effective educational program should be repeated periodically every 6 months to gain new knowledge".

Skills acquired

All parents wanted to gain skills at the end of educational program like o optimal handling of attacks, how to control asthma and reduce attacks, knowledge and awareness about the disease and self-management "...at the end of this program I would to gain skills about dealing with attacks". "...at the end of this program I would my child to gain skills about self-management of asthma".

The ease of the program

All parents viewed that educational programs can be easy and simple if implemented in a language that is understandable to parents and children, applied demonstration of inhaler technique, and using multimedia. "...I view educational programs can be easy and simple if they contain a variety of multimedia to be appropriate to all parents and children".

Table 1. Parents' Demographic and Occupational Characteristics:

Item	(n= 16)	%
Age of parents		
25 - ≤ 35	11	68.75
35 - ≤ 45	5	31.25
Mean (S.D)	32.30 (4.1)	
Educational level of the caregiver		
Secondary	6	37.5
High education	10	62.5
Relationship with the child		
Father	8	50
Mother	8	50
Occupation of interviewed parents		
Work	16	100
Nature of work		
Full time	8	50
Part time	8	50
Income		
Enough	12	75
Not enough	4	25

Box A. Summary of the Main Themes for Qualitative Findings of the Parents' Views Toward the Design of the Educational Program:

Main themes
First theme: Content of a health education program <ul style="list-style-type: none"> ▪ How to deal with an asthma attack immediately after it occurs ▪ Education on everything related to caring for a child with asthma ▪ Common triggers and factors that worsen symptoms ▪ Medication Management ▪ Trigger Management ▪ Self-Management
Second theme: Teaching methods <ul style="list-style-type: none"> ▪ Lectures ▪ workshops
Third theme: Multimedia required. <ul style="list-style-type: none"> ▪ Pictures ▪ Videos ▪ Educational brochures
Fourth theme: Methods for an effective educational program <ul style="list-style-type: none"> ▪ Using simple, easy-to-understand language ▪ Repeat the program periodically every 6 months ▪ Scientific visual material online
Fifth theme: skills acquired <ul style="list-style-type: none"> ▪ Optimal handling of attacks ▪ How to control asthma and reduce attacks ▪ knowledge and awareness about the disease ▪ self-management
Sixth theme: The ease of the program <ul style="list-style-type: none"> ▪ Easy language that is understandable to both mothers and children. ▪ Demonstration of inhaler technique ▪ Using multimedia

4. Discussion

Bronchial asthma is a prevalent global health concern among children, significantly affecting various aspects of their lives and

contributing to increased morbidity. Asthma management education programs can greatly reduce symptoms, lower absence from school, and enhance quality of life in general (Kocaaslan & Kostak, 2019). These programs provide kids and

caregivers with the fundamental skills they need to manage themselves. Hospitalizations and emergency visits have been shown to significantly decrease using community-based treatments that combine education and care coordination (Chan et al., 2021).

The result of the study revealed that most parents were interested in learning how to manage a bronchial asthma attack as soon as it happens, how to care for a child with asthma, common triggers and variables that exacerbate symptoms, how to manage it, how to take medicine, and how to manage their child's asthma on their own. They believe that adherence to bronchial asthma medication is crucial; this program must incorporate management knowledge. These findings are supported by previous studies indicating that educational programs that combine clinical expertise and useful self-care skills greatly assist kids with asthma diagnoses (Rehman, Almeida & Wu, 2020).

Regarding the teaching method that will be used to explain the program, the parents prefer that educational programs be implemented through diverse instructional methods such as interactive lectures, workshops, group discussion, roleplay, and games such as computer-based games like "Quest for the Code" and "Air Academy" (Greer, Lin, & Atkinson, 2017), which include practical training about dealing with asthma. These findings are supported by systematic reviews that have found them effective in increasing parents' and children's awareness and engagement in asthma self-management (Ferrante, Licari, Marseglia & La Grutta, 2021). In addition, a recent study in Turkey demonstrated that a mobile game-based application greatly enhanced kids' inhaler technique, lessened the intensity of their symptoms, and enhanced their quality of life for kids between the ages of 8 and 12 (Karakul, Düzkeya, Bozkul, & Çapanoğlu, 2024).

The parents also emphasized the importance of using a variety of media, such as pictures, videos, and educational brochures. Incorporating interactive and multimodal teaching methods, particularly play-based ones, in asthma education programs can improve motivation, meet developmental needs, and turn conventional instruction into engaging learning opportunities. Multimedia resources, such as animation and video-based formats, are beneficial (Geryk et al., 2016). These findings were similar to the finding of a systematic review that found that while most multimedia solutions used for teaching and learning are geared toward the pedagogical content of the subject of interest and the solution's user audience,

the technologies and components incorporated into their development are responsible for the success of the various multimedia tools used on the various target groups and subjects (Abdulrahman et. al., 2020).

Parents also believe that the use of clear language, comprehensive planning, and diverse teaching strategies is essential for effective asthma education programs. Studies showed that these methods improve asthma management, reduce emergency visits, and reduce dependency on corticosteroids. Most parents viewed that educational programs can be easy and simple if implemented in a language that is understandable to parents and children, with applied demonstration of inhaler technique, and using multimedia. This approach is supported by a study conducted by Eakin et al. (2020), who showed that a home- and school-based asthma education initiative utilizing simple language and interactive methods significantly improved asthma management in preschoolers, significantly reduced emergency visits, and dependency on corticosteroids over a year. As Cochrane reviews showed that school-based self-management programs reduce emergency room visits and hospital admissions (Harris et al., 2019).

The parents emphasized the importance of education for children and parents on emergency response, medication adherence, and self-care skills. Research shows that parent-focused education enhances knowledge and asthma management skills, which is compatible with a study conducted in India (Divecha, Tullu, & Jadhav, 2020). Mobile game-based training and multimedia content are effective in improving technique and maintaining skills over time (Karakul et al., 2024). Educational initiatives are crucial for addressing Bronchial Asthma in school-aged children. The result also highlighted positive impacts on patients' knowledge, practices, and self-care strategies, which was supported by a study conducted in Meit Khalaf Village, Shebin ElKom District, Menoufia Governorate, which discovered that, in comparison to before the program's introduction, the educational program had a favorable effect on the patients' knowledge, behaviors, and self-care techniques (Eissa, Farahat, Hegazy, & Barakat, 2020).

5. Conclusion and Recommendations

The results of the study indicate that the parents of children with bronchial asthma showed a strong agreement about developing an educational program for enhancing their understanding and management of the condition. They also

demonstrate a strong willingness to engage in educational efforts aimed at improving asthma management.

The result of the study also revealed that parents preferred educational programs implemented through lectures and workshops using a variety of media, such as pictures, videos, and educational brochures using simple, easy-to-understand language, preferably in the Arabic language.

Based on the findings and conclusions drawn from the study, the following recommendations are made: -

- Implement a structured health education program on bronchial asthma in schools targeting the parents of school-age children.
- Programs should be delivered through lectures and workshops using various media, such as pictures and videos, using simple Arabic language for better comprehension.

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7. Declaration of Conflicting Interests

There are no conflicts of interest concerning the research, authorship, and/or publication of this study.

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