



Assessing Knowledge, Attitude, and Practices of Parents Towards Physical Activity of Children with Asthma Referring to Ahvaz Teaching Hospitals

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Abstract

Background: Parents are the primary caregivers and their positive knowledge, attitude, and practices play an important role in children's future vision.

Objectives: This study aimed to determine knowledge, attitude, and practices of parents of asthmatic children about physical activities in patients referred to teaching hospitals in Ahvaz during 2016.

Methods: In this cross-sectional study, 118 parents of children with asthma, admitted to the pediatric wards of teaching hospitals in Ahvaz, were selected by non-randomized consecutive method according to the inclusion criteria ($P = 0.5$, and $d = 0.09$). A researcher-made questionnaire (demographic information, knowledge, attitude, and practices of parents) was given to 20 parents after calculating cvr, cvi, and reliability confirmation through test-retest method by 10 professors. The data were analyzed using descriptive statistics, and ANOVA. Management and data analysis was performed using the SPSS statistical software.

Results: The results showed that the knowledge of 61.01% of parents was ideal and 38.13% intermediate, attitude of 51.69% was ideal and 48.30% neutral, and practices of 53.38% was ideal and 46.61% was intermediate towards physical activity in children with asthma. There was a significant association between the level of knowledge and attitude of parents with educational level ($P = 0.0001$), severity of asthma ($P = 0.049$), and duration of asthma ($P = 0.049$).

Conclusion: Overall, knowledge, attitude, and practices of parents on physical activities, such as swimming and gymnastics, was poor and it is suggested that parents be advised towards more allowed sports activities in children with asthma.

Keywords: Knowledge, Attitude, Practice, Parents, Children with Asthma, Physical Activity

1. Background

One of the causes of the families' crises is chronic disease of one of the family members, especially children. Long period of chronic diseases has made care and treatment processes very difficult for patients that influences the practices of children and their parents (1, 2).

According to data obtained from the national research council of America, 15%-18% of children and adolescents suffer from chronic diseases (3). Asthma is one of the most common chronic pulmonary diseases; this chronic inflammatory airways disease increases airways responsiveness, induces obstruction, mucus overproduction, and airway deformation (2, 4). Cough attacks, dyspnea, and feeling of chest tightness in patients with asthma increase by factors such as dust, exercise, smoking, and air pollution (5, 6).

Childhood asthma can cause permanent restriction

of respiratory functions and increase chronic obstructive pulmonary disease in children (7). Fear of asthma attacks could limit their activity and result in increased dependence on others, and eventually impose a negative impact on the practices of children and parents (8).

Asthma, having serious effects, causes a high economic burden in various aspects (9). More than 5 million children and adolescents are the main victims of asthma (10). Generally, asthma exists worldwide and 30% - 35% of the world's population suffers from asthma, which has major impacts on health and economic status of communities (11, 12). According to the reports of centers for disease control (CDC), it is predicted that until 2025 more than 400 million patients suffer from asthma (13). According to the ministry of health and medical education in Iran in 2008, 10% of the population -about 5.6 - 6.5 million people- had asthma. Based on a study on school-aged students in Tehran in 2014,

the prevalence of asthma in Tehran's elementary school was 31.6% (2).

In many children with asthma, the expected symptoms of maturity and growth may appear slower, which may also be associated with bone-age retardation (14).

Children with asthma are absent from school and are awake at night (15). Given that parents are the main caregivers of children with chronic diseases, increasing their awareness, changing attitude, and practices in parents of patients with chronic diseases leads to disease control (2, 16).

There is a mutual relationship between children's disease and patient knowledge, attitude, and practices of parents (17, 18). Increasing knowledge, attitude, and practices of parents by reducing the effects of disease, and vice versa, is the primary treatment goal in chronic diseases (19).

The outcomes of physical activity in children include positive self-esteem, the ability to achieve the goal, having a sense of control over life, and optimism about their future (17). Physical activity is a dynamic interactive and social process in children that is formed in relation with others, improves childrens' relationships in the future, and leads to positive attitude towards the disease (20).

Most research show that regular sports exercises decrease respiratory symptoms by reinforcement of respiratory muscles and decrease hospitalization rate (21). According to a recent research, sports exercises have useful effects on pulmonary tolerance as well as function and decrease number of breathings during sports (22). According to spirometry results, sports exercises 2-3 times a week for 4 weeks, each time 30 to 40 minutes can improve lung's practices (23). Daily and sports activities are essential needs of everyday life of humans. Researchers found that asthma affects various physical activities of these patients who are unaware of implementing ideal actions for prevention of asthmatic symptoms and attacks, as well as avoid sports activity, and participation in competitions due to a fear of new attacks (24). Best activities for patients with asthma are aerobic and stretching activities as well as walking in fresh air. Since those suffering from asthma should try to strengthen their lungs and raise their ability index, climbing and even battle sports, despite being anaerobic, are not contra-indicated in the controlled stages of asthma (25).

According to researches done by Arash, such as the effect of asthma on the performance of infected patients, it is recommended that the function of asthmatic patients be considered as part of a care plan periodically with the aim of evaluating the results of the study conducted by children in Salvia in 2013. As a result of the majority of parents of allergic children, it was said that their child's disease was an obstacle to physical activity. A study by Li Chi in Taiwan entitled "The parent's attitude towards physical

activity in children with asthma at school age", resulted in parents' health beliefs, to improve the level of physical activity, management improvement, and the importance of children's asthma control.

Despite the few studies in Iran, especially in the south of the country and the city of Ahvaz, about the knowledge, attitudes, and performance of asthmatic children families with regard to the physical activity of the child. In order to increase the level of parental performance and provide hygiene care, we decided to do a study in this field. By doing this study, if you learn the knowledge, attitudes, and performance of the parents of children, they can be more involved in their child participation. This can be done by caring for these children by taken effective steps.

2. Objectives

This study aimed to determine knowledge, attitude, and practices of parents of asthmatic children regarding the physical activities in patients who referred to teaching hospitals in Ahvaz during 2016.

3. Methods

3.1. Research Environment and Patients

The present cross-sectional study was conducted on parents of children with asthma, hospitalized in teaching hospitals in Ahvaz, which has a pediatric ward during 2016. Non-consecutive sampling method was conducted. In regards to the unavailability of a proper assessment of knowledge, attitude, and practices of individuals in order to maximize the sample size, $P = 0.5$, and $D = 0.9$ was considered. A total of 118 parents of children with asthma, admitted to the pediatric wards of teaching hospitals in Ahvaz, were selected based on inclusion and exclusion criteria. The objectives of the study and inclusion as well as exclusion criteria were explained to them. The study was approved by the ethics committee of Jondishapour, Ahvaz University of Medical Sciences and written consent was obtained from participants. A total of 4 researcher-designed questionnaires (demographic of parents, knowledge, attitude, and practices) were handed to the parents and collected after being completed by them.

3.2. Entry and Exit Criteria Inclusion

To collect data, the parents willing to participate in this study were asked individually to complete the questionnaire. The questionnaires were read to the illiterate parents and the selected responses by them were marked. All subjects expressed their consent to participate in the study.

Inclusion criteria included:

- 1- Disease of asthma in child is approved by a doctor
- 2- At least 6 months from a child's illness
- 3- The child's age is between 2 and 12 years.

Exclusion criteria were all conditions that prevented the continuation of the study (i.e., physical and mental crises) and hospitalization due to an acute disease of child with asthma. None of the samples were excluded from the study

3.3. Questionnaires

1- The demographic information questionnaire contained 21 questions regarding age, gender, education, ethnicity, number of children, age and occupation of spouse, income, family history of asthma, severity of asthma, absence from school, time of diagnosis, as well as child's follow-up by parents.

2- Knowledge questionnaire evaluated knowledge of parents about the child's daily and sports activities. The questions were designed based on the available scientific information on physical and sports activities in children with asthma. This tool included 17 questions (daily activities included 11 questions, and sports activities included 6 questions), answered by 2 choices of yes and no; the correct answer was scored 1 and the wrong answer was considered 0. The knowledge of parents was categorized into poor (scores 0 - 6), intermediate (scores 7 - 12), and ideal (scores 13 - 17).

3- The attitude questionnaire included 11 questions on parents' attitude to perform daily and physical activities that included 2 categories (6 questions related to daily activities and 5 questions related to sports activities). The answers were scored by a 5-point Likert scale from strongly agree to strongly disagree, and a score between 1 and 5 was considered for each response. Scoring was done based on the positive and negative direction of phrases, so that "strongly agree" and "agree" in all phrases scored 4 and 5 while "disagree" and "strongly disagree" in all phrases scored 1 and 2. In negative phrases, scoring was vice versa. "I don't know" was scored 3 in all phrases. Scores ranged from 10 to 55 and individuals were divided into 3 groups as follows: A. has a negative attitude (scores 0 - 20), B. has a neutral attitude (scores 21 - 36), and C. has a positive attitude (scores 37 - 55) towards daily and sports activities for children.

4- A 14-item questionnaire was used for assessment of parents' practices on daily activities and sports activities for children that included 2 sets of questions (9 questions related to daily activities and 5 questions related to sports activities). Questions were answered by 2 choices of yes and no and the scoring was based on 0 and 1. Practices of the daily activities and sports activities for children was

considered poor (scores 0 - 4), intermediate (scores 5 - 9), and ideal (scores 10 - 14).

Validity of the questionnaires was confirmed by content validity approval by 10 faculty members of nursing and midwifery school, Medical University of Ahvaz. After applying the suggestions and necessary changes on the knowledge questionnaire including 19 questions, 2 questions were omitted and finally 17 questions remained, approved with a $Cvr = 0.69$ and $Cvi = 0.79$. Attitude questionnaire consisted of 11 questions, approved with a $Cvr = 0.76$, and $Cvi = 0.99$. Parent practices questionnaire with 14 questions was approved by the professors with $Cvr = 0.81$ and $Cvi = 0.85$.

- To assess the reliability of knowledge questionnaire, test-retest method was used, resulting in a correlation coefficient of ($r =$) 0.76 ($P = 0.001$), which represented acceptable reliability of the questionnaire.

- To assess the reliability of attitude questionnaire, test-retest method was used, resulting in a correlation coefficient of ($r =$) 0.87 ($P < 0.001$), which represented acceptable reliability of the questionnaire.

- To assess the reliability of practices questionnaire, test-retest method was used, resulting in a correlation coefficient of ($r =$) 0.92 ($P < 0.001$), which represented acceptable reliability of the questionnaire.

To analyze the data, descriptive statistical methods, such as drawing frequency Tables, graphs and determining the central and dispersion indices were used to describe the studied variables. Then, Chi-square test was used to examine the qualitative variables. The relationship between quantitative variables was investigated using Pearson correlation coefficient and Spearman correlation coefficient. Comparison between the 2 groups was performed using the t-test and among more than 2 groups, with ANOVA or non-parametric tests. Less than 0.05 was considered significant in all tests. Data analysis was performed by SPSS software 22.

3.4. Ethical Consideration

The protocol of the study was reviewed and approved by the department of University of Jondishapur in Ahvaz. The main objectives and protocols of the study were explained to the participants. They were assured of the confidentiality of the collected information and freedom to withdraw from the study at any time during the study. Informed consents were obtained from all participants. Afterwards, the questionnaires were distributed among parents of children with asthma. Whenever a question seemed vague, some additional explanations were also provided. It should be noted that these explanations were provided to avoid any kind of ambiguity and/or bias.

4. Results

Questionnaires were handed to 118 parents of children with asthma and collected after being completed. Of the parents, 75.4% were female and 24.6% were male. The minimum age of the parents was 19 years and maximum was 45 years. A total of 66.1% of parents were Arabs and 33.9% were Fars. 76.3% of parents' educational level was below high school diploma and 23.7% of the parents had higher than high school diplomas. 29.7% of fathers were self-employed, 3.4% of fathers had governmental jobs, and 66.9% of mothers were housewives. 41.5% of children had a positive family history of asthma and 58.5% of the children had a negative family history. 39.8% of school-aged children were absent from school. The youngest age of children with asthma was 2 months and the oldest was 72 months. 90.7% of parents got their information from physicians, and 3.4% of parents received their information from a nurse. 82.2% of children had moderate severity of asthma, 10.2% mild, and 7.6% had severe asthma.

The results showed that 51.69% of parents had an ideal attitude towards their children's physical activities and 48.30% of parents had intermediate attitude.

The results showed that 61.01% of parents had an ideal knowledge of physical activities of their asthmatic children and 38.13% of parents had intermediate knowledge.

The results showed that 53.38% of parents had ideal practices and 46.61% of parents had intermediate practices towards physical activities of children.

The results of parents' knowledge questionnaire on physical activity showed that the lowest and weakest correct answers to knowledge questions were related to the following questions: Question 7: "Is sports activities effective to improve your child's breathing?", 37.3% had the correct answer for this question. Also, question 9: "Does swimming in chlorine-free water improve your child's asthmatic attacks?", 39.8% had the correct answer. Question 12: "Should your child walk to school to improve breathing?", a total of 39.8% of parents had the correct answer for this question, which showed poor knowledge of parents in these matters.

The results of parents' attitude questionnaire towards physical activity showed the lowest and weakest correct answers to question 1: "Does asthma impair my child's physical activity?" with negative attitude in 39.8%, neutral in 20.3%, and a positive attitude in 39.8%. Question 2: "Does asthma affect my child's homework?" with 47.5% neutral attitude, 34.1% positive attitude, and 18.5% negative attitude. Question 4: "Does asthma affect my child's physical development?" with negative attitude in 34.7%. Question 6: "Shall I prohibit my child from exercise?" with positive attitude in 40.4%, negative attitude in 40.4%, and neutral

attitude in 19.2%.

In question 8: "Are stretching exercises, like gymnastics, effective in improving my child's breathing?", positive attitude was 2.5%, neutral attitude 66.1%, and negative attitude 31.4%.

The results of the parents' practices questionnaire on physical activity showed the least and weakest correct answer to questions were related to the following questions: Question 4: "Shall I take my child to go swimming in chlorine-free water?" with 34.7% correct answers. Question 6: "Shall I encourage my child towards stretching exercises like gymnastics for better breathing?" with 23.7% correct answers, and question 10: "Shall I take my child to walk to school for better breathing?" with 45.5% correct answers.

Overall, answers to the questions of knowledge, attitude, and practices of parents towards physical activity that includes daily activities and sports activities such as swimming and gymnastics were poor.

Table 1. Distribution of Frequency of Parents' Attitude Towards Physical Activity of Children

Attitude	Number	%
Weak	0	0
Average	57	48.30
Good	61	53.38
Total	118	100

Table 2. Distribution of Frequency of Parents' Knowledge Towards Physical Activity of Children with Asthma

Knowledge	Number	%
Weak	0	0
Average	45	38.13
Good	72	61.01
Total	118	100

Table 3. Distribution of Frequency of Parents' Practices Towards Physical Activity of Children with Asthma

Function	Number	%
Weak	0	0
Average	55	46.61
Good	63	53.38
Total	118	100

5. Discussion

The main focus of this study was to determine knowledge, attitude, and practices of parents towards physical activity of children with asthma, referring to Ahvaz teaching hospitals in 2016.

Frequency of demographic variables were studied. Comparison of mean score of knowledge, attitude, and practices of parents of asthmatic children towards physical activities of children with asthma based on gender and ethnicity, using t-test, showed no significant correlation between gender and ethnicity with level of knowledge, attitude, and practices ($P > 0.05$).

Educational level induces fundamental changes in attitude and health awareness in disease and various aspects of life, so that in many studies, educational level is considered an effective factor on practices. In this research, there was a significant relationship between knowledge, attitude, and practices of parents towards physical activity in children with asthma with educational level ($P = 0.0001$); in other words, the higher the education, the better knowledge, attitude, and practices of parents will be towards physical activity in children with asthma. In the research carried out by CalPaclio Glough and his colleagues, educational level and practices of the samples were significantly correlated (2). In the study by Mazloomi et al., educational level was directly related to the behavior of asthmatic patients (17). Our study results are consistent with these studies.

The relationship between the disease duration and knowledge, attitude, and practices of parents was significant ($P = 0.049$). Furthermore, increased duration of their child's disease increased desirable knowledge, attitude, and practices of parents. CalPaclio Glough and colleagues reported significant correlation between the disease duration and patients' practices ($P = 0.001$).

Based on the findings of this study, a significant relationship was observed between the severity of asthma and knowledge, attitude, and practices of parents towards physical activity ($P = 0.049$), so that with the greater intensity of disease symptoms, attitude and practices of parents became worse. Juniper and colleagues also showed significant association between the disease, patients' practices, and the severity of symptoms ($P = 0.001$); in addition, Sanderberg found a significant relationship between the patients' practices and severity of airway obstruction ($P = 0.001$) so that more severe obstructive symptoms was correlated with lower level of knowledge. However, Marx, in his research on children with asthma aged 7 - 14 years, showed that with increasing asthma severity, mean physical activity changed from 5.6 ± 1.4 to 4.2 ± 1.6 in asthma (25). Our study results are consistent with these studies.

In the present study, there was a significant relationship between missed school days in school-aged children with asthma and school-aged children had absence from school ($P = 0.001$). The results of the study by Velsor Friedrich and Giva showed that education of physical activities to children and adolescents with asthma reduces the number of missed school days and decreases asthma-related admissions (7). Our study results are consistent with these studies.

The results of parents' practices questionnaire towards physical activity showed the least and weakest correct answers related to sports activities such as swimming, gymnastics, and walking that shows parents' need for education. Results of the study by Richenberg on children with asthma aged 7 - 9 years in Sweden showed that most physical activity was limited in children, including running, gymnastics, climbing, and football (7). In the study by Rydström et al., on children with asthma, the greatest impairment was in physical activities. In another study, the highest impairment was in physical activities (22).

Results of the research by Yekeh Fallah and similar studies express that this sports exercises may improve clinical manifestations and pulmonary function in patients with asthma (26).

The results showed that most parents acquired their knowledge about asthma from their physician and 3.4% from nurses, which shows improper relationship between nurses and patients as well as lack of adequate training of nurses to parents of children with asthma. Considering the fact that nurses have the highest contact with parents of children with asthma, further education of nurses to parents can be effective in increasing knowledge, attitude, and practices of parents towards physical activities of children with asthma.

One of the limitations we have had to do in this research is in the hospital, in which most of our subjects were mothers. Due to the high number of mothers on the bedside of the children in the hospital, the study was used. Due to the early discharge of children from our hospital, we had time and parents' emotional conditions in the hospital. Our study results would change if they were better in psychological conditions.

5.1. Conclusion

In general, the results of this study indicate that variables such as years of childhood disease, parental education and the severity of childhood disease have been effective on the knowledge and attitude of parents and their performance. In general, knowledge, attitude and practice of parents regarding the physical activities of children with asthma have been desirable, except for the knowledge, attitude, and practice of performing sports activi-

ties such as swimming and gymnastics, which had poor results. Considering the effectiveness of performing physical activity in the process of recovery and treatment of children with asthma, the study of the knowledge, attitude, and practice of parents regarding the physical activity of children with asthma and the factors affecting it, in line with the principles of treatment as well as care and health follow-up can modify the symptoms of the disease by improving the physical and mental status, daily activities of children's lives, as well as the social performance of children and families.

Since the knowledge, attitude, and practice of parents are low in sports activities for children with asthma, it is suggested that measures be taken into consideration in clinics and centers that children with asthma refer with their parents. Sports exercises and their benefits should be educated to the parents of children with asthma. Also, it is suggested that the ministry of health and medical education provide more facilities for training in clinical settings by nurses to parents and children on sports exercises of children with asthma. It is also suggested that exercises be used as complementary therapies for the promotion and development of treatment of children with asthma. The results of this study have shown that knowledge, attitude, and practices of parents should be evaluated in all populations, as it can improve the social function of the family and promote children's health.

5.2. Implication for Practice

The results can be used as a guidance for nurse managers and practitioners to design appropriate educational programs for parents of children with asthma. Programs include planning for physical and sports activities in children with asthma due to the fact that it led to an increase in the psychological and physical dimensions of their lives.

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