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RESEARCH ARTICLE

Effect of Family Empowerment on the Quality of life of School-Aged Children with Asthma Attending Pediatric Outpatient Clinics of Tanta University and El-Mehalla El-Koubra Chest Hospital

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Abstract

Abstract: - Asthma affects a child's quality of life and overall health. Children with asthma should be able to achieve good asthma control. **Aim of the study:** - to evaluate effect of family empowerment on the quality of life of school-aged children with asthma attending pediatric outpatient clinics of Tanta University and El-Mehalla El- Koubra chest hospital **Materials and Methods:** - The study design was quasi -experimental study. This study was conducted at the Pediatric Outpatient Clinic of Tanta University and Outpatient Clinic of El-Mehalla El- Koubra Chest Hospital. A convenient sample of 47 asthmatic children and their parents in the selected settings who were willing to participate in the study and then randomly divided into two groups of intervention (family empowerment group) (23 child) and control (24child). Three tools were used by the researchers to obtain the necessary data. Tool I: - The structured interview questionnaire sheet and tool II :- Measures Child quality of life and tool III: - Measures Parent/caregiver's quality of life. **Results:** The mean of the age of the children in the family empowerment group was (Mean \pm SD: 8.91 \pm 2.52) while it was (Mean \pm SD: 8.66 \pm 2.18) in the control group. More than half of children (56.5% and 58.3%) were male in the family empowerment group and control group respectively. There was statistical significantly different between both groups in the total and subscale scores of quality of life of children before and after the intervention of family empowerment group ($p < 0.05$). **Conclusion and recommendations:** - There was significantly different between both groups in the total and subscale scores of quality of life of children and caregivers before and after the intervention of family empowerment group and before and after two weeks of control group ($p < 0.05$). Educational programs about asthma are recommended to be performed on asthmatic patients in all age groups.

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INTRODUCTION

Asthma is one of the most common chronic respiratory diseases of childhood in the world. With the aggravation of environmental pollution, the pediatric asthma prevalence rate is increasing significantly in the world The World Health Organization defines asthma as a chronic inflammatory disorder of the airways associated with increase bronchial hyper- responsiveness This chronic inflammation is related to the hypersensitivity of the airways causing episodes of expiratory wheezing, dyspnea, chest tightness and cough especially at night or early

morning. Asthma is the first cause of absence from school and the third cause of hospitalization of children under 15 years of age. The prevalence of asthma, its complications, and related morbidity and mortality are increasing worldwide. Such increase is attributed to air pollution, poor access to health care services, misdiagnosis and mistreatment⁽¹⁻³⁾. The World Health Organization (WHO) has estimated that the number of asthmatic patients will increase to 100 million by the end of 2025. Magdy Zedan (2010) stated that the prevalence of asthma among school children in the Nile Delta region was 7.7%⁽⁴⁾.

The underlying causes of childhood asthma aren't fully understood. Developing an overly sensitive immune system generally plays a role. Some factors thought to be involved include; inherited traits, some types of airway infections at a very young age, and exposure to environmental factors, such as cigarette smoke or other air pollution. Increased immune system sensitivity causes the lungs and airways to swell and produce mucus when exposed to certain triggers. Reaction to a trigger may be delayed, making it more difficult to identify the trigger. These triggers vary from child to child and can include; viral infections such as the common cold, exposure to air pollutants, such as tobacco smoke, allergies to dust mites, pet dander, pollen or mold, physical activity, and weather changes or cold air. Sometimes, asthma symptoms occur with no apparent triggers. Common childhood asthma signs and symptoms include: frequent and intermittent coughing, a whistling or wheezing sound when exhaling, shortness of breath, chest congestion or tightness, chest pain, particularly in younger children⁽⁵⁾.

Asthma management includes the use of agents for control and agents for relief. Control agents include the following: inhaled corticosteroids, inhaled cromolyn or nedocromil, long-acting bronchodilators, theophylline, leukotriene modifiers, and anti-immunoglobulin E (IgE) antibodies (omalizumab). Asthma may cause a number of complications, including: severe asthma attacks that require emergency treatment or hospital care, permanent narrowing of the airways (bronchial tubes), missed school days or getting behind in school, poor sleep and fatigue, symptoms may interfere with play, and sports or other activities⁽⁶⁾.

With the increasing pediatric asthma prevalence rates, more and more asthma-related clinical visits, hospitalizations and mortalities were recorded, resulting in more physical and emotional symptoms, greater activity limitations, and poorer well-being and social functioning for the asthmatic children. Although the clinical and physiological indicators, such as asthma symptoms and pulmonary function testing, are important, health related quality of life (HRQOL) can provide a more comprehensive description of the impact of the illness on the life of children with asthma^(1,2,7). The high prevalence of asthma poses a significant financial burden on the health care system and the patients' families⁽⁷⁾. Moreover, the chronic nature of disease and its long duration negatively affect the quality of life of asthmatic children⁽⁸⁾. Prevention of chronic and disabling diseases is a result of new medical researchers. One of the most important aspects of preventive medicine is improving quality of life. Health related quality of life (HRQOL) includes not only physical functioning but also emotional and social functioning dimensions⁽⁸⁾. Quality of life from the WHO's point of view, is an extensive concept affected by physical health, mental status, independence, social relations and communication with the environment⁽⁹⁾. Physicians and researchers use the quality of life as a reliable index for assessment of treatment success in asthmatic children⁽⁹⁾. The quality of life in school-aged children is influenced by the disease symptoms, subsequently limited activities, and asthma effects on the emotional and social functions of the child. The results of a study by Blackman showed that school-aged asthmatic children lose more school days than their peers and experience a high level of depression and other behavioral disorders. The high prevalence of asthma, its symptoms and complications and its effects on growth and development as well as other aspects of life of elementary school children, all emphasize the importance of research in this age group⁽¹⁰⁾. During the school-age years, the children become more independent of the family and gain authority over their environment. As the asthmatic child grows, management of disease, which was used to be done entirely by the parents at home, is now done by the child under the supervision of parents. Thus, the child becomes more responsible about his condition. However, this self management requires gaining knowledge and expertise regarding the nature and symptoms of disease, triggers and correct use of medications, and acquiring the necessary skills to adequately manage asthma attacks. Asthmatic children can gain the sense of control via education and support because school-aged children are capable of accepting the fact that they can very well manage their condition under the supervision of parents. Giving the responsibility of asthma management to asthmatic school-aged children is an important developmental process that promotes the sense of control and authority over the disease in the child^(11,12).

Empowerment is an intervention for better control of asthma and its management by the children and their parents. Empowerment is the cornerstone of the philosophy of family-based care. In this process, the children become actively involved in the course of treatment and take responsibility of taking care of themselves by gaining adequate knowledge and skills in this regard. This participation in the treatment protocol further adds to

children satisfaction⁽¹³⁾. Studies on empowerment of children with chronic conditions emphasize on two important aspects of this intervention including its appropriate management, following a treatment regimen and establishing an effective interaction between the child and the health care team. The family-based care approach considers patients' family members as colleagues in the process of care in an effort to empower the family⁽¹⁴⁾. Family empowerment aims to help families gain the required strength to change them. Family empowerment in asthmatic children and their families aims to control asthma by enhancing knowledge, self-confidence and self-efficacy and coping with new behaviors. Nurses can also empower children suffering from chronic conditions via education, counseling and direct care. The process of empowerment can be facilitated by educating children regarding the method of disease prevention, control of symptoms, minimizing drug side effects, participation in physical activities and living a normal life⁽¹⁵⁾. Patient education is a key intervention to promote the level of health and empower families with a child suffering from a chronic condition. This is among the most important responsibilities of nurses. In this process, instruction of empowerment emphasizes on educating the entire family and focuses on their strength points and capacities, educational needs, enhancing their knowledge and improving their participation in the process of care. Evidence shows that educating the sick children and their families enhances their authoritative knowledge and self-management skills^(16,17).

Family is the main responsible for providing adequate care for children. Evidence shows that family plays an important role in prevention and treatment of diseases. In the process of caring for a sick child, the family should have a correct perception of the disease. Nurses have the responsibility to help the family and increase their confidence and hope. This approach promotes family health and wellness. Chronic diseases of children adversely impact on the family function and involve the family with so many responsibilities and concerns regarding the child's health care needs, educational and medical services, disease costs, losing social opportunities, too many absences from work and physical and emotional problems. Thus, participation of the sick child in the process of care alongside his/her parents is extremely important. Asthma affects the quality of life of children as well as that of the other family members^(18,19). Thus, this study aimed to assess the effect of family empowerment on the quality of life of asthmatic school-aged children.

Aim of the study:-

The aim of this study was to evaluate effect of family empowerment on the quality of life of school-aged children with asthma attending pediatric outpatient clinics of Tanta University and El-Mehalla El- Koubra chest hospital

Research hypotheses:-

Family empowerment program will improve the quality of life of asthmatic children and their parents, control of disease and self-management of asthma by the children and their family.

Materials and methods

Study design:-

The study design was quasi -experimental study.

Settings of the study:-

This study was conducted at the Pediatric Outpatient Clinic of Tanta University and Outpatient Clinic of El-Mehalla El- Koubra Chest Hospital.

Study subjects:-

The study was conducted from July to September 2014 for a period of 3months, two times per week at the previous settings. During the 3 months period of the study, sixty child with asthma were interviewed, ten were interviewed for a pilot study, three of them were not cooperative and excluded, and the forty seven (N = 47) who accepted and completed the questionnaire were the total studied population in this study. Subjects were selected using convenience sampling and were then randomly divided into two groups of intervention (case) (23 children) and control (24child). The inclusion criteria were children aged 6-12years, presence of their parents, and diagnosis of mild to severe asthma by the attending physician, no specific physical or mental disease and willingness of the child and parents to participate in the empowerment educational program. The exclusion criteria were asthma recurrence (acute asthma attacks) and hospitalization that could affect the child's quality of life and was not controllable. Children having another chronic condition (other than asthma) or a specific physical or mental disease were also among the exclusion criteria since they could adversely affect the quality of life of children. All of participants received a full explanation of the objectives of the study before accepting to participate in this work.

Tools of data collection:-

Three tools were used by the researchers to obtain the necessary data.

Tool I: structured interview questionnaire sheet.

A structured interview questionnaire sheet which was designed by the researchers based on thorough review of literature. This tool comprises the following parts:-

Part 1:-

- 1- Socio-demographic data: age, sex, level of education and residence area.
- 2- Parents' demographic information as father and mother's education , parental smoking, the family characteristics, home ventilation , painting , entry of sun rises , presence of domestic animal, asthma drugs which prescribed to their children , effect of asthma on their children going to school , and admission to the hospital. This part was filled out by the parents.

Part (2)

caregivers' knowledge about asthma in relation to its meaning, causes, factors aggravate and relieve, signs and symptoms, common types of treatment ,diagnostic measures of asthma and the quality and quantity of nutrition of asthmatic children, nutritional problems of asthmatic children, foods that must be included in their regimen. The questionnaire took about 15 to 20 minutes to be filled by the researchers.

Scoring system of the program:-

The knowledge questionnaire included (14) questions. The total score of all questions was (51 degree). Each correct answer was assigned as score of "one" and wrong answer as score of "zero". The total knowledge score of the studied subjects had been classified into three categories as follows:-

- Poor knowledge: less than 25 degree of the total knowledge score (< 50 % of the total score) .
- Fair knowledge: more than 25 to less than 35 degrees of the total knowledge score (50 % - < 70 % of the total score).
- Good knowledge: more than 35 degree s of the total knowledge score (: ≥ 70% of the total score) .

Tool II :- Measures Child quality of life .

The Paediatric Asthma Quality of Life Questionnaire (PAQLQ) was administered to children for measurement of quality of life. The PAQLQ contains 23 items that children with asthma have identified as troublesome in their daily lives. The instrument includes three subscales: activity limitations (5 items), symptoms (10 items), and emotional function (8 items). Response options for each item are on a 7-point anchored scale with a score of 1 indicate maximum impairment and 7 indicating no impairment. All items are weighted equally. Results are presented as the mean score for each subscale as well as the total quality-of-life scale. Intra class correlation coefficients for children 7 to 10 years of age were 0.89 for overall quality of life, 0.83, 0.87, and 0.68 for the three subscales activity limitations, symptoms, and emotional function, respectively ⁽²⁰⁾. The instrument was administered to each child by researches and lasted for approximately 20 minutes.

Tool III: - Measures Parent/caregiver's quality of life:- The parent/caregiver's quality of life was ascertained using the Pediatric Caregiver Quality of Life Questionnaire (PC-QOLQ) ⁽²¹⁾. Intra class correlation coefficients for total PCQOLQ score and the Emotional Function and Activity Limitation domains were 80 to 85 ⁽²⁰⁾. Each of the 13 items in the PCQOLQ was measured on a 7-point likert scale ranging from "all of the time" to "none of the time" with lower scores indicating "none of the time" allowing for a total range of scores from 13 to 91. Scores were calculated for the total quality of life and the two domains of emotional function and activity limitation for each parent. Minimal important differences in quality-of-life scores are 0.5 points and a change of 1.0 is considered a moderate change ⁽²²⁾. The instrument was administered to each child by the researches and lasted for approximately 10 minutes.

Methods

1. Before conducting the study, a written permission letter was obtained from the Faculty of Nursing Tanta University to the manager of the Outpatient Clinics of Tanta University and Outpatient Clinics of El-Mehalla El- Koubra chest hospital in order to obtain an approval to carry out the study.

2. **Medical ethics:** Approval of the study was taken from the Faculty of Nursing to the manager of the previous settings in order to attain an approval to carry out the study. **Informed written and oral consent** was obtained from children and their parents to participate into the study. Confidentiality was assured. The package of the Arabic translation for the United Arab Emirates which will include the caregiver paper and PAQLQ(S) versions of the questionnaires was obtained by air email from Penny Freeman who is responsible to send the tool for the researchers from professor Juniper. The reliability of the questionnaires was assessed by calculating the Cronbach's alpha which is 0.945.
3. **Preparation for the program.**

General Objectives.

Improve the quality of life of asthmatic children, control of disease and self-management of asthma by the children and their family.

Target group:-

The participants were all elementary school asthmatic children aged 6-12 years and their caregivers attending the previous settings during the period of study.

Setting of sessions:-

The program was implemented in waiting room in outpatient clinics.

Number and duration of the sessions:

The contents of the family empowerment program were designed by the researchers based on the requirements, concerns and weaknesses of asthmatic children and their families regarding the knowledge about asthma, its control and management according to accredited references in this regard. Organizing the content of the program was done to facilitate learning activities to achieve the objectives. The content was organized in 2 sessions.

Methods of teaching:-

Lecture followed by free discussions of care givers. A booklet containing all the topics of the program were distributed among study groups .The topics were based upon the content of the program

Teaching aids: Data show and posters.

4. Field work of the study

This study was performed in 3 steps:

- 1- After obtaining a written permission from the previous settings, the researchers presented to the pediatric outpatient clinic during work hours two day / week from July to September 2014 and considering the inclusion criteria, selected the school age asthmatic children and their parents for family empowerment and control groups. The children and their parents were also briefed about the objectives of the family empowerment program and received answers to their questions. The study protocol, the process of intervention and its safety were thoroughly explained to children and their parents and written informed consent was obtained from parents. Verbal consent was obtained from children. Pre-test was then carried out.
- 2- Based on the location of holding intervention sessions and better interaction and communication of children and their parents with one another and with the researchers, the intervention group (family empowerment) was ranged from(2-3) parents and their child in each session and 2 intervention sessions were held for intervention group. In the first intervention session, subjects received information about asthma disease, its prevalence in children, and pathophysiology of asthma, etiologic and aggravating factors and how to prevent them control of asthma triggers both indoor and outdoor and most common asthma medications use during asthma attacks. These topics were discussed by showing images and practical demonstration by the researcher. An educational film was also shown on how asthmatic children commonly administered inhaled drugs and respiratorysupplements, washing and cleaning of these devices. At the end of the first intervention session, the parents and the children in the intervention group were provided with a colorful booklet of asthma management and control and an educational pamphlet containing a summary of all the information taught in the empowerment classes. Also, questions of the children and parents were fully answered during the sessions and after. In the second intervention session, at the first, topics discussed in the previous session were briefly reviewed. Also, parents were requested to show the correct use of the spray, inhaler and their washing and cleaning. The researchers corrected them if they were wrong. Then, the quality and quantity of nutrition of

asthmatic children, nutritional problems of these children, foods that must be included in their regimen and important points in this respect were discussed via showing slides and group discussion. During the 2-week intervention period, families were in touch with the researchers via phone and could discuss any problems with him. The control group underwent no intervention and received the conventional treatment as usual.

- 3- Post-test was carried for both groups out 2 weeks after the completion of interventions. Children and parents in the control group were also provided with a summary of all topics discussed in the empowerment sessions in the form of a colorful booklet of asthma management and control and an educational pamphlet.

Statistical analysis

The data were coded, entered and analyzed using SPSS (version 20). Descriptive statistics (frequency numbers and Percentages) identified demographic characteristics and parents' responses to the questionnaire. The mean and standard deviation were calculated for children and parents quality of life. Paired t tests were used to analyze the relationships; statistical significant was set at P value < 0.05%.

Results

Table (1) represents distribution of the studied children regarding their socio-demographic the table shows that the mean of the age of the children in the family empowerment group was (Mean \pm SD: 8.91 \pm 2.52) while it was (Mean \pm SD: 8.66 \pm 2.18) in the control group. As regard children sex slightly more than half of children (56.5% and 58.3%) were male in the family empowerment group and control group respectively. Regarding the educational level of studied children more than half (56.5%) of the family empowerment group and the majority of (60.8%) the control group were in primary education (1-3 grade) while the rest of both group were (3-6 grade).

In relation to the residence area of both groups the table shows that nearly two thirds (60.9%) of the family empowerment group and the majority (87.5%) of the control group were residence in rural area. Regarding the birth order the majority (87% and 95.8% respectively) of the family empowerment group and control group their birth order were between first and third birth order respectively.

As regard to mothers' education, it was observed that more than one quarter (26%) of the family empowerment group were illiterate / read and write and nearly one third (30.4%) and nearly half (43.5%) of them were diplom and bachelor . while nearly half (45.8%) and more than half (54.2%) of control group were illiterate/ read and write and diplom. As regard to fathers' education, it was observed that half (50%) of control group were illiterates/ read and write while about 45.8% of them had diplom respectively. While in the family empowerment group nearly one quarter (21.7%) and nearly half (47.8%) of them were diplom and bachelor respectively .

Regarding home condition the majority of the studied children (95.7% and 79.2%) had good environmental sanitation for both the family empowerment group and control group respectively and the sun lights enter the majority of children home (91.3% and 83.3% respectively) of both group, nearly half (47.8%) of the family empowerment group. Moreover, the type of home painting was plastic for more than two thirds (69.6% and 70.9%) of the family empowerment group and control group respectively, only 21.7 and 12.5% respectively of children home were painted by lime and more than two thirds (69.5%) of the family empowerment group and more than half (58.3%) of control group had from 1 to 3 rooms. Furthermore, the family members of (65.3% and 58.3% respectively) of the family empowerment group and control group ranged from 5-7 members and the majority (91.3% and 79.3% respectively) of them had not domestic animals at home

In relation to the family income per month, it was observed that more than half (61.0% and 58.3% respectively) of the family empowerment group and control group mentioned that the income was enough, while more than one third (39% and 41.7% respectively) of them mentioned that income was not enough .

Table (2) represents distribution of the studied children regarding their asthma history. Regarding the time of occurrence of asthma the table shows that the majority (87% and 83.3% respectively) of the family empowerment group and control group had seasonal asthma, more than half (52.2%) of the family empowerment group and more than one quarter (29.2%) of the control group had family history with asthma, 17.4% of the family empowerment group had family history from grandfather and more than one third (37.5%) of the control group had family history from father.

Moreover, the mean of the duration of asthma by years in the family empowerment group was (5.56 \pm 2.79) while it was (5.87 \pm 3.41) in the control group. The mean rate of consultation by weeks for children with asthma was

(3.7391±1.17618) in the family empowerment group while it was (3.95 ±2.01) in the control group. In addition, the majority (75%) of the control group their fathers were smokers.

As regard level of asthma nearly two thirds (61.4%) and nearly half (45.9%) respectively of both groups had partly controlled asthma while 30.4% and 41.7% respectively of both groups had controlled asthma .the table also shows that the highest percentages of the family empowerment group (65.3%,61.4%, 56.5% and39%) stated antihistamines ,systemic steroid, inhaled steroids and theophylline as the most common asthma's drugs of use while the highest percentages of the control group (79.2%,70.8%,62.5% and 58.3%) stated antihistamines, inhaled steroids, theophylline and systemic steroid. Furthermore, more than one third (34.7%) of the family empowerment group and the majority (83.3%) of control group reported presence of drug side effects and about 80.6% and 50.1% of both groups reported that there was not difficulty in consultation while the majority (91.3% and 83.3% respectively of children in both groups were absent from their school and were not admitted to hospital due to asthma.

Table (3) represents level of knowledge before and after family empowerment compared to control group. This table shows that about two thirds of the family empowerment group and the majority of the control group (60.9% and 79.9 % respectively) had poor score of knowledge about asthma before program, with mean scores (19.8±16.4and9.9±9.8 respectively). While after two weeks from program implementation the score of knowledge of the majority (87%) of family empowerment group was good and score of knowledge for more than two thirds (70.9%) of control group after two weeks was poor .There was a statistical significant difference between family empowerment group before and after implementation of the program and between both groups before and after implementation of the program in relation to their knowledge score (p<0.05).

Table (4) represents quality of life of children with asthma before and after family empowerment compared to control group.. The results demonstrated that in family empowerment group, the total and subscale scores before and after the intervention were statistical significantly different (p<0.05) while there was not significant differences existed in control group. There was statistical significantly different between both groups in the total and subscale scores of quality of life of children before and after the intervention of family empowerment group (p<0.05).

Table (5) represents quality of life of care givers of children with asthma before and after family empowerment compared to control group. The results revealed that significant differences existed in the mean of activity limitation and emotional function of quality of life of care givers of children with asthma before and after the intervention program of the family empowerment group and there was significant differences between both groups in total score, activity limitation and emotional function of quality of life of care givers of children with asthma before and after the intervention program(p<0.05).

Table (1) Distribution Percentage of the Studied children According to their Socio-Demographic Characteristics.

Socio-demographic characteristics	Family empowerment group		Control group		p-value
	Mean \pm SD		Mean \pm SD		
Age Mean \pm SD	8.91 \pm 2.52		8.66 \pm 2.18		.667
Sex	No= 23	%	No= 24	%	1.000
Male					
Female	13 10	56.5 43.5	14 10	58.3 41.7	
Educational level					
Primary 1-3					
Primary 4-6	13 10	56.5 43.5	17 7	70.8 29.2	
Residence					
Urban	9	39.1	3	12.5	
Rural	14	60.9	21	87.5	
Birth order					
1 st - 3 rd	20	87	23	95.8	
4 th - 6 th	3	13	1	4.2	
Mother's education					
Illiterate / read and write	6	26	11	45.8	
Diplom	7	30.4	13	54.2	
Bachelor	10	43.5	0	0.00	
Father's education					
Illiterate / read and write	7	30.4	12	50	
Diplom	5	21.7	11	45.8	
Bachelor	11	47.8	1	4.2	
Environmental sanitation					
Good	22	95.7	19	79.2	
Bad	1	4.3	5	20.8	
Entry of the sun light to the home					.103
Yes	21	91.3	20	83.3	
No	2	8.7	4	16.7	
Type of home painting					
Plastic	16	69.6	17	70.9	
Lime	5	21.7	3	12.5	
None	2	8.7	4	16.7	
Number of room					
1-3	16	69.5	14	58.3	
4-6	7	30.5	10	41.7	
Number of family member					
2-4	8	34.7	10	41.7	
5-7	15	65.3	14	58.3	
Presence of domestic pets					
Yes	2	8.7	5	20.8	
No	21	91.3	19	79.2	
Family income					
Enough	14	61.0	14	58.3	
Not enough	9	39.0	10	41.7	

Table (2) Distribution Percentage of the Studied Children According to their Asthma History .

Asthma history	Family empowerment group		Control group		p-value
	No= 23	%	No= 24	%	
Seasonal asthma					.714
Yes	20	87.0	20	83.3	
No	3	13.0	4	16.7	
Family history with asthma					-----
Father	1	4.3	9	37.5	
Mother	3	13.0	4	16.7	
Grandfather	4	17.4	3	12.5	
Other family member	3	13.0	1	4.2	
No family history	12	52.2	7	29.2	
Duration of asthma by years Mean ±SD	5.56±2.79		5.87± 3.41		.893
Rate of consultation by weeks Mean ±SD	3.7391±1.17618		3.95 ±2.01		.543
Parental smoking					0.03
Yes	11	47.8	18	75.0	
No	12	52.2	6	25.0	
Asthma drugs					.653
Inhaled steroids	13	56.5	19	79.2	
B-2 agonists	3	13.0	4	16.7	
Theophylline	9	39.0	15	62.5	
Systemic steroid	14	61.4	14	58.3	
Antihistamines	15	65.3	17	70.8	
Presence of drug side effects					162.
Yes	8	34.7	20	83.3	
No	15	65.3	4	16.7	
Difficulty in consultation					.016
Yes	4	17.4	11	45.9	
No	19	80.6	13	50.1	
School absenteeism					.665
Yes	21	91.3	20	83.3	
No	2	8.7	4	16.7	
Hospital admission					.162
Yes	2	8.7	4	16.7	
No	21	91.3	20	83.3	

Table (3) Level of Parent Knowledge Before and After Family Empowerment Compared to Control Group.

level of knowledge	Family empowerment group				Control group				p-value
	Before program		2 weeks after program		Before 2 weeks		After 2 weeks		
	No= 23	%	No= 23	%	No= 24	%	No= 24	%	
Good	4	17.4	20	87.0	0	0.0	0	0.0	0.00*
Fair	5	21.7	3	13.0	5	20.8	7	29.1	0.00*
poor	14	60.9	0	0.00	19	79.2	17	70.9	0.00*
Mean ±SD	19.8±16.4		45.3±7.7		9.9±9.8		11.8±9.4		0.00*
t-test	7.448				1.906				0.00*
p-value	0.00*				0.069				

Table (4) Quality of Life of Children with Asthma Before and After Family Empowerment Compared to Control Group

Quality of life of children with asthma	Family empowerment group		Control group		p-value
	Before program	2 weeks after program	Before 2 weeks	After 2 weeks	
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	
Activity limitation	3.06 ± 1.14	4.43±1.68	2.22 ±1.18	1.96±. 89	0.00*
t-test p-value	4.502 .010*		2.19 .038		
Symptoms	2.72 ±.98	4.58 ±1.61	2.5±.88	2.3±.68	0.00*
t-test p-value	6.627 .006*		0888 .384		
Emotional function	3.32 ±1.19	5.03±1.54	3.01±1.20	2.9±1.2	0.00*
t-test p-value	5.619 .028*		.108 .915		0.00*
Total score	3.01± .95	4.73±1.50	2.6±.94	2.4±.79	0.00*
t-test p-value	6.804 .003*		1.55 .133		

Table (5) Quality of Life of Care Givers of Children with Asthma Before and After Family Empowerment Compared to Control Group.

Care giver quality of life of children with asthma	Family empowerment group		Control group		p-value
	Before program	2 weeks after program	Before 2weeks	After 2 weeks	
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	
Activity limitation	2.7±1.18	4.7 ±1.9	2.8±1.32	2.7 ±1.37	0.00*
t-test p-value	6.52 .001*		.635 .532		
Emotional function	2.72 ±1.24	4.28 ±2.01	2.7 ±1.37	2.4 ±1.17	0.00*
t-test p-value	5.571 .000*		1.211 .238		
Total score	2.7±1.18	4.3±1.90	2.7 ±1.27	2.6 ±1.09	0.00*
t-test p-value	6. 072 .000*		.382 .706		

Discussion

Asthma is a chronic inflammatory disorder of the airways. It is one of the major public health problems affecting 160-300 million people worldwide it can cause significant morbidity and sometimes mortality⁽²⁴⁾. Global prevalence of asthma ranges from 1-18% of the population in different countries⁽²⁵⁻²⁷⁾. The prevalence of about 50% per decade⁽²⁸⁾. Approximately 250,000 people die of asthma worldwide annually⁽²⁶⁾. It also imposes a great economic burden on family and consequently on community⁽²⁸⁾. Inadequate knowledge about asthma may lead to delay in initiation of therapy, which will further increase morbidity and mortality. With better health education and providing targeted information asthma awareness among general population can be improved which will reduce the burden of disease and economy loss⁽²⁹⁾. So, the aim of this study was to evaluate the effect of family empowerment on the quality of life of school-aged children with asthma.

As regard the socio- demographic characteristics of the participants the mean of the age of children of the family empowerment group was (8.91 ± 2.52) years and (8.66 ± 2.18) years of the control group. More than half of (56.5% and 58.3% respectively) of the family empowerment group and control group were male. The mean duration of asthma in the family empowerment group was (5.56 ± 2.79) and it was (5.87 ± 3.41) in the control group. The difference was not significant ($P > 0.05$). These findings were in consistent with that of Payroovee et al., (2014) who found that the mean (\pm SD) age of children was 9.57 ± 1.38 years in the intervention and 7.86 ± 1.75 in the control group. More than two third (69.6%) of intervention group and more than half (54.5%) of control group was male. The mean duration of disease was 3.67 ± 2.7 years in the intervention and 4.63 ± 2.87 years in the control group. The difference was not significant ($P > 0.05$)⁽²³⁾. Also these findings were in agreement with that of Dean et al., (2010) regarding the age and sex⁽³⁰⁾.

Regarding environmental sanitation the majority of them from rural area , had a large family number , living in(1-3)room , the present study also showed the majority of the studied group painting their homes by a plastic paint. So all accumulated factors are justify why the bronchial asthma common in rural areas. Regarding the time of occurrence of asthma the present study showed that the majority (87% and 83.3% respectively) of the family empowerment group and control group had seasonal asthma, more than half (52.2%) of the family empowerment group and more than one quarter (29.2%) of the control group had family history with asthma, 17.4% of the family empowerment group had family history from grandfather and more than one third (37.5%) of the control group had family history from father. The majority (91.3% and 83.3% respectively) of both groups were absent from their school and were not admitted to hospital due to asthma. This finding was agreement with Awan and Munir (2015) who found that a positive family history of asthma, eczema or atopy in 61% of the patients which is quite high⁽²⁹⁾. The findings of the present study also similar to the findings of a cross sectional study conducted in Lahore where positive family history of asthma was found in 66% and other allergic conditions in 86% of study population⁽³¹⁾. Dean et al., (2010) found that children with uncontrolled asthma had more frequent emergency admissions and had more days absent from school due to frequent recurrences of asthma⁽³⁰⁾. The more severe and less controlled a child's asthma, the more likely the child is to be absent compared to children without asthma, and in turn, the lower their test scores⁽³²⁾. To reduce the impact of asthma on children and their families, feasible, comprehensive, and effective interventions are needed in multiple settings⁽³³⁾.

As the prevalence of childhood asthma is increasing, it was expected that the awareness and knowledge about the disease would be increasing among the caregivers⁽³³⁾. Regarding caregivers' knowledge about definition, causes, factors aggravating, how to prevention and control, treatment of asthma the present study revealed that about two thirds of the family empowerment group and the majority of the control group (60.9% and 79.9 % respectively) had poor score of knowledge about asthma before program, their mean scores of knowledge were (19.8 ± 16.4) and 9.9 ± 9.8 respectively) before program. While after two weeks of implementation of the program for family empowerment group only their score of knowledge for the majority(87%) of them was good and more than two thirds (70.9%) of control group after two weeks without any intervention their score of knowledge was poor .

There was a significant difference between family empowerment group before and after implementation of the program and between both groups before and after implementation of the program in relation to their knowledge score ($p < 0.05$). These findings were supported by other studies that done in this area. The findings of the present study was supported by Awan and Munir (2015) who found that caregivers of asthmatic children still lack adequate knowledge about asthma and have many misconceptions regarding disease and its treatment⁽²⁹⁾. These deficits in asthma knowledge have been documented in others studies, where parents demonstrated poor knowledge about trigger factors , the role of different medications , the function of the peak flow meter and the concept of allergens⁽³³⁻³⁵⁾. The findings were disagreement with Prapphal et al., (2007) who found that only 53.2% of the

caregivers had an acceptable level of asthma knowledge despite having been the key person in caring of asthmatic children for at least one year and being previously informed about their child's illness by the physicians⁽³⁶⁾. The findings of the study done by Silva and Barros (2013) were disagreement with the findings of the present study in that Asthma Knowledge Questionnaire (AKQ) mean score in their study is slightly higher but they were in accordance in that after the preliminary education was given to the caregivers during the beginning of the their study, there was significant improvement in the asthma knowledge to the acceptable level⁽³⁷⁾.

It has been shown that asthma can have a profound impact on children. Uncontrolled asthma symptoms not only affect children physically but can impair them socially, emotionally, and educationally. However, the impact of asthma in children extends to their caregivers and families, who face the burden of care and impact on lifestyle. Achieving optimal asthma control can reduce the impact of symptoms on the daily functioning of the child in addition to the caregivers and other family members⁽³⁰⁾. Regarding the quality of life of children with asthma and their caregivers before and after family empowerment for intervention group in the present study found that the total and subscale scores of quality of were significantly increased after the intervention in family empowerment group compared to the control group and the results also revealed that there was significantly difference between both groups in the total and subscale scores of quality of life of children before and after the intervention of family empowerment group and before after two weeks of control group ($p < 0.05$). the finding of the present study was in agreement with Payroovee et al., (2014) who found that the mean total and subscale quality of life scores significantly increased after intervention in the intervention group compared to the control group and significant differences existed in the total and subscale scores before and after the intervention in the intervention group and all these scores significantly increased post intervention⁽²³⁾. The results of a study by Alhani et al. (2011) showed that family empowerment intervention improved the quality of life of asthmatic children and increased their scores in emotional and functional domains, performance at school, and treatment of disease⁽³⁸⁾. The findings of the study done by Zandieh et al., (2006) revealed that the quality of life, in the domain of activity limitation, in asthmatic boys was lower than symptoms and emotional function domains⁽³⁹⁾. Cano-Garcinuno et al., (2007) in their study on asthmatic children in Spain, Cuba and Uruguay showed that asthma management group instruction improved the overall quality of life of these children and its domains (activity imitation, disease symptoms, and emotional function) and also decreased asthmatic children's admissions to the emergency ward⁽⁴⁰⁾. McGhan et al., (2010) reported that instruction of asthma management and control improved the quality of life in the mentioned three domains and the intervention group children had less days absent from school⁽⁴¹⁾. The results of the study done by Cano-Garcinuño et al., (2007) found that there was a marked improvement in morbidity as a result of group education in children and the frequency of asthma attacks decreased by approximately 1.6 attacks per patient-year compared with the control group⁽⁴⁰⁾.

At present, education is considered to be one of the bases of the management of asthma in adult and pediatric patients⁽⁴²⁾. Wolf et al., (2003) found that education of children with asthma aimed at self-management improves pulmonary function and self-efficacy and reduces the days of school absence and restricted activities, the number of nights with asthma, and the number of visits to the emergency department, but has no clear effect on asthma attacks or hospital admissions⁽⁴³⁾. The results of these study was disagreement with the results of the study done by Patterson et al., (2005) who found that there was not improvement in Paediatric Asthma Quality of Life Questionnaire (PAQLQ) after intervention⁽⁴⁴⁾.

However, this finding was on the contrary with the results of Dolinar et al., (2000) who found that the quality of life of caregivers did not improve as a result of individual home education⁽⁴⁵⁾. Also Cano- Garcinuño et al. (2007) found that there was no improvement in caregiver quality of life as a result of any group education modality⁽⁴⁰⁾. Thus, quality of life of the caregivers appears to be determined by the severity of asthma⁽⁴⁶⁾ and factors such as the caregiver affect⁽⁴⁷⁾. But the study done by Teach et al., (2006) discussed that instruction of self-monitoring and self-management of asthma according to the principles of family-based care in asthmatics aged 12 months to 17 years, decreased occurrence of symptoms, patient admission to the emergency wards and consequently increased the quality of life of patients and their parents⁽⁴⁸⁾. Al Zahrani et al., (2014) found that children and adolescents with impaired asthma control were found to have more impaired HR-QoL compared with children and adolescents with controlled asthma⁽⁴⁹⁾. Moreover, Dean *et al.*, (2010) reported that activity limitation seems to be the most impaired domain in children; asthma symptom perception and emotional health appear to be the most affected health related quality of life domains in parents⁽³⁰⁾.

For family empowerment and improve quality of life of children with asthma and their care givers intervention and individual education are provided to patients together with their caregivers, and in that face-to-face situation, caregivers play the main role, leaving the child in the background. Therefore, individual education

acts mainly on caregivers and their subsequent participation in group education activities adds no further benefits. In children, group education where they are in a situation together with their peers can be more effective in improving their responsibility towards the disease⁽⁴¹⁾.

Conclusion

Two thirds of the family empowerment group and the majority of the control group (60.9% and 79.9 % respectively) had poor score of knowledge about asthma before program. There was a significant difference between family empowerment group before and after implementation of the program and between both groups before and after implementation of the program in relation to their knowledge score ($p < 0.05$). There was significantly different between both groups in the total and subscale scores of quality of life of children and caregivers before and after the intervention of family empowerment group and before after two weeks of control group ($p < 0.05$).

Recommendation

Based on the results of the present study, the following are recommended:-

1. Family empowerment of children with asthma and their caregiver's education intervention should be provided in primary care settings for children with asthma and their caregivers.
2. Educational programs about asthma are recommended to be performed on asthmatic patients in all age groups.
3. Manual handout about asthma must be disseminated at asthmatic children clinic.
4. Activating in-service training programs to nurses at outpatient clinics about the importance of educating children with asthma and their caregivers.

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