The Role of Cupping Therapy As a Complementary Therapy On The Pulmonary Functions And Quality Of Life Of Asthmatic Children

Submitted by:

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A Thesis submitted for partial fulfillment of the Master degree in childhood medical studies

2010

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Aim of the Study

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- To evaluate The effectiveness of Cupping Therapy as a complementary therapy on the pulmonary functions and quality of life of asthmatic children and adolescent.

Introduction

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- World Health Organization (WHO) find that Asthma is the most common chronic disease among children. And Asthma is under-diagnosed and under-treated. It creates substantial burden to individuals and families and often restricts individuals' activities for a lifetime
- Asthma is one of the leading chronic childhood diseases, a major cause of childhood disability, and places a huge burden on affected children and their families, limiting the child's ability to learn, play and even sleep. Children miss about 13 million school days each year because of asthma.
- Asthma is a chronic inflammation of the airways with reversible episodes of obstruction, caused by an increased reaction of the airways to various stimuli. Asthma breathing problems usually happen in "episodes" or attacks but the inflammation underlying asthma is continuous.
- The burden of asthma is higher than generally recognized, particularly in children. For example, in Egypt up to one in four children with asthma is unable to attend school regularly because of poor asthma control .
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Complementary Medicine

- Complementary and alternative medicine is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine. Complementary medicine is used together with conventional medicine.
- More Than One-Third of U.S. Adults Use Complementary and Alternative Medicine, According to New Government Survey.
- 64% of US medical schools reported offering elective courses in complementary or alternative medicine or include these topics in required courses
- In addition to conventional medications, many parents use complementary and alternative medication (CAM) to treat their child's asthma symptoms.

Cupping Therapy

- Cupping is an ancient method of treatment that has been used in the treatment and cure of a broad range of conditions.
- Cupping, is known to be an effective alternative to needles (Acupuncture) in stimulating acupoints in acupuncture treatment.
- One of the major advantages must be that the transmission of blood-borne diseases can be avoided since skin is not penetrated. **(Tham et al, 2006)**

- Empty (Flash) Cupping Method is the favorite cupping method for children **(Chiralli 1999**)
- cupping therapy can effectively improves the pulmonary functions in asthmatic children especially with those with mild asthma**.(Hong et al, 2006)**

Cupping and Asthma

- The most common children's ailment treated by cupping therapy include, asthma, common cold and digestive complaint. (Chiralli ,2007)
- Needle puncture or electro-acupuncture stimulation to the effective acupoints significantly improves both airway mucociliary clearance and the airway surface liquid. (Husheng et al, 2006))
- Acupuncture improves airway permeability, pulmonary hemodynamics, and the functional state of respiratory muscles. (Adim et al, 2005))
- Application of cupping seems to be able to diagnose, prevent and treat early stage of external pathogenic invasion. This modality has significant clinical value. (Moses et al, 2005)
- Cupping therapy used alone can effectively improves the pulmonary functions in asthmatic children especially with those with mild asthma.(Hong et al, 2006)

Quality of life

- Because one of the aims of treatment is to ensure that the children benefit from treatment, an essential component of clinical assessment of these children should be the evaluation of health-related quality of life**. (Elizabith F.Juniper)**
- Estimation of the quality of life represents a new aspect and can be defined as a marker in diagnosis and estimation of the type of the disease and final success of the total therapy as well. **(Kaminov et al, 2002)**
- The Pediatric Asthma Quality of Life Questionnaire (PAQLQ) is one of the most widely used instruments for measuring health-related Quality of Life in children with asthma. **(Poachanukoon et al, 2006)**
- Patients with clinically stable, chronic obstructive asthma experienced clinically significant improvements in quality of life when their standard care was supplemented with acupuncture or acupressure**. (Shu hwa et al, 2003)**

Patients and Methodology

Patients and Methodology

- Patients:

Patients of the study were 60 children with diagnosed Mild persistent asthma according to Global strategy for asthma management and prevention (**GINA 2006**) selected from El Badrasheen Chest Center.

Patients and Methodology

- **A. Inclusion Criteria:**
- 1- Children at 7-16 years diagnosed as having mild persistent Asthma according to Global strategy for asthma management and prevention (GINA 2006) (Symptoms more than once a week but less than once a day, Exacerbations may affect activity and sleep, Nocturnal symptoms more than twice a month, FEV1 > 80%predicted, and FEV1 variability <20 - 30%)
- Children with average weight (Between 15th percentile and 85th Percentile according to Egyptian Growth Charts 2002).
- Patients who accept to share in the study.

B. Exclusion Criteria:

- 1. Children with other chronic diseases such as (Diabetes, Heart problems, Liver disease).
- 2. Patients who refuse to share.
- 3. Patients with other asthma degrees
- 4. Obese Children

Type of Study:

- Experimental study

- **Ethical consent:**
- Written informed consent will be obtained from each child parents after explanation of the aim of the study and its benefit for their children and other children who have the same disease.

Methods:

- The patients divided into 2 groups randomly matched:
- **Group 1**:(Combined Treatment group as a test):
- Include 30 asthmatic children with mild persistent asthma (8 Female and 22 Male) in age group from 8 to 15 years with mean age of 10.73 ± 2 subjected to standard asthma medication according to (Global strategy for asthma management and prevention (GINA 2006) and to Empty cupping therapy

Empty (Flash) Cupping Therapy

- **Instruments used**
- Cupping therapy equipment was used including a manual suction pump, plastic cups of the medium size and lubricant oil to facilitate application and removal of cups.
- **Empty Cupping:**
- Empty cupping is also called flash cupping for its quickness of application. A medium Vacuum is used, but is applied rapidly and the cups remain in place for a very short time, i.e. less than 30 seconds.

Empty (Flash) Cupping Therapy

- **The Procedure:**
- 1-lubricant is put on the cupping areas in chest and back
- 2-the cupping therapy was performed at the back along both sides of vertebral column very quickly.
- Then on the chest wall below the clavicle on both side and in the middle line on the sternum
- The cupping was applied two times per week **(Tao, Sheng, 2000),** 10 sessions of cupping was considered as one course. children from group 1 will receive 1 course of empty cupping therapy on selected points which will be selected according to cupping therapy references.

Methodology

- **Group 2** ;(Treatment group as a Control)
- Included 30 asthmatic children with mild persistent asthma (7 Female and 23 Male) from 8 to 15 years with mean age of 10.6 ± 1.993 subjected standard asthma medication according to Global strategy for asthma management and prevention (GINA 2006)

Methodology

- **All patients subjects to the following:**
- Full history include, age of onset of the disease, onset of treatment, medication, episodic symptoms, cough, wheezing, chest tightness, positive family history and using of risk medications.
- **Examination:**
  - General examination including chest, heart and abdomen.
  - height, weight
- **Investigations:**
- **Pulmonary Function:**
- Spirometry is the recommended method of measuring
- airflow limitation and reversibility to establish a diagnosis of asthma. It will assess the function of large and small airways before and after the course of treatment and we measured:
- FEV1,FVC,FEV1/FVC ratio,FEF25-75%

Pediatric Asthma Quality of life questionnaire

4- Quality of life Questionnaires:

- Two groups are subjected to **Pediatric Asthma Quality of life questionnaire** (PAQLQ) before and after treatment.
- The Pediatric Asthma Quality of Life Questionnaire contains 23 items that children with asthma have identified as troublesome in their daily lives. The PAQLQ consists of 23 questions (items) divided into three categories (domains): activity limitations (five questions), symptoms (10 questions) and emotional function (eight questions). With regard to physical activities, patients themselves select three of the activity limitation items. The answers, are assessed by way of a seven-point scale, where 1 indicates maximum impairment and 7, no impairment.

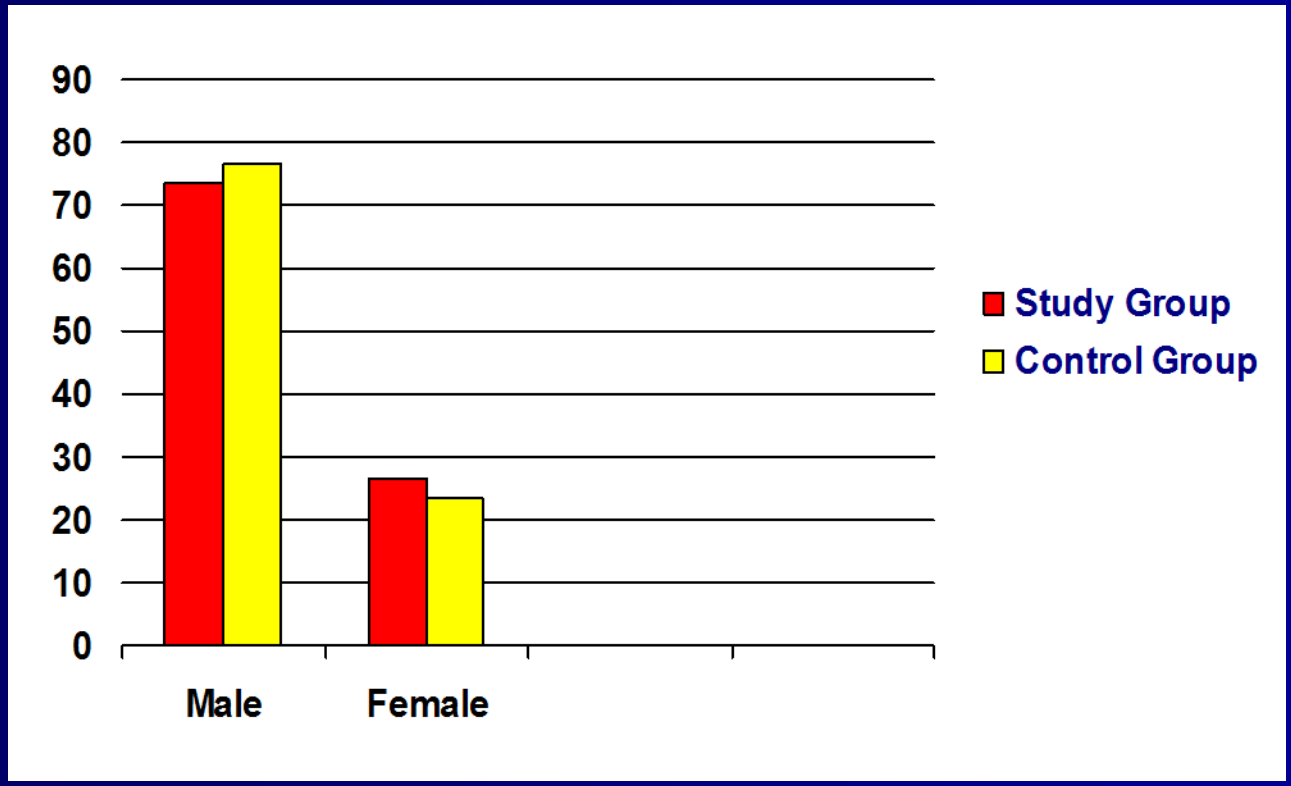
Results

Age, Sex, Height and weight characteristics

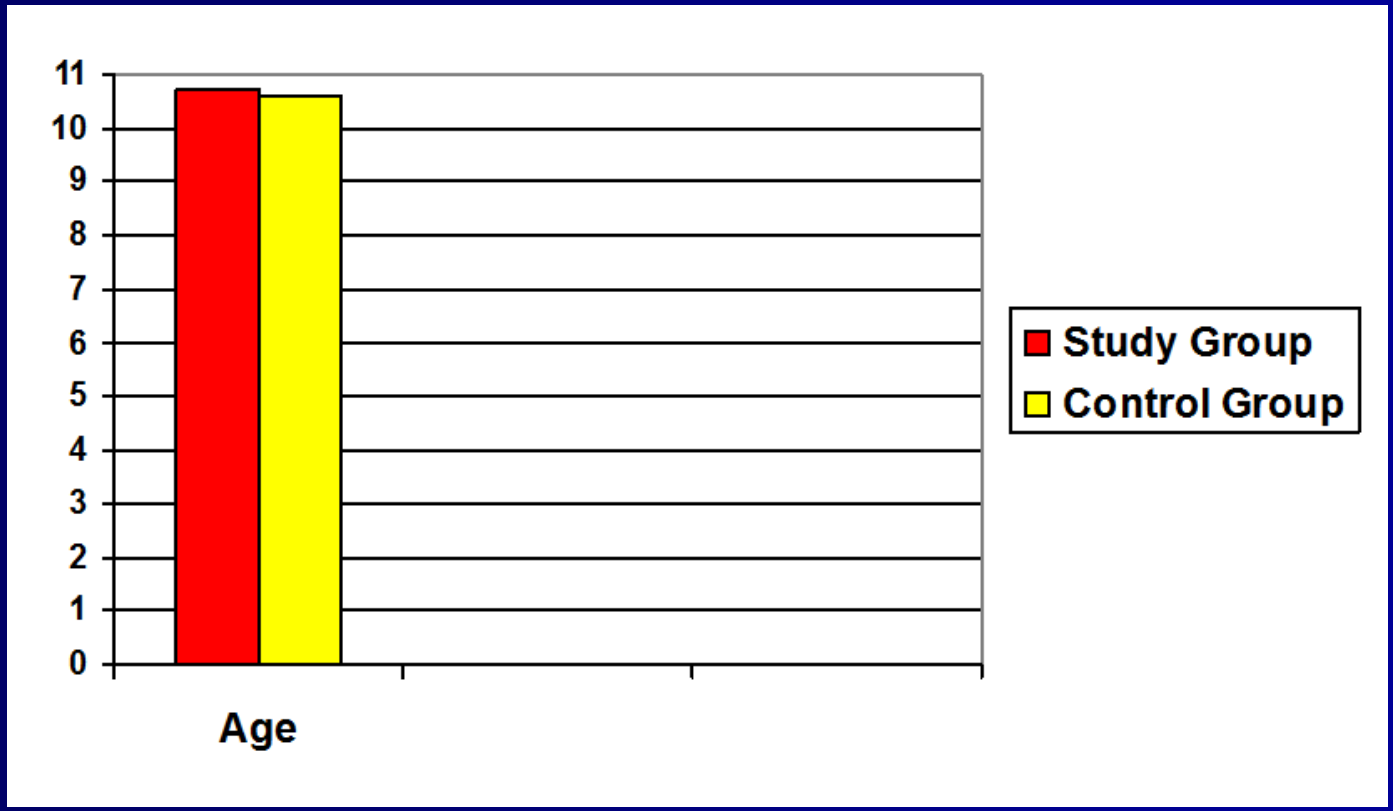
		Study group (n = 30)	Control group (n = 30)	p-value
Age	Mean ± SD	10.73 ± 2.149	10.6 ± 1.993	(t-test) 0.8
	Range	8 – 15	8 – 15	
Sex	Male	22 (73.3%)	23 (76.7%)	(Fisher's exact) 1
	Female	8 (26.7%)	7 (23.3%)	
Heigh/age	Mean ± SD	28.01 ± 6.07	28.46 ± 6.57	(t-test) 0.7
	Range	18-40	15-45	
Weight/age	Mean ± SD	28.76 ± 5.79	29.06 ± 5.16	(t-test) 0.8
	Range	22 – 45	23 – 40	

P Value> 0.05 (Non Significant)

Study and Control Group Gender

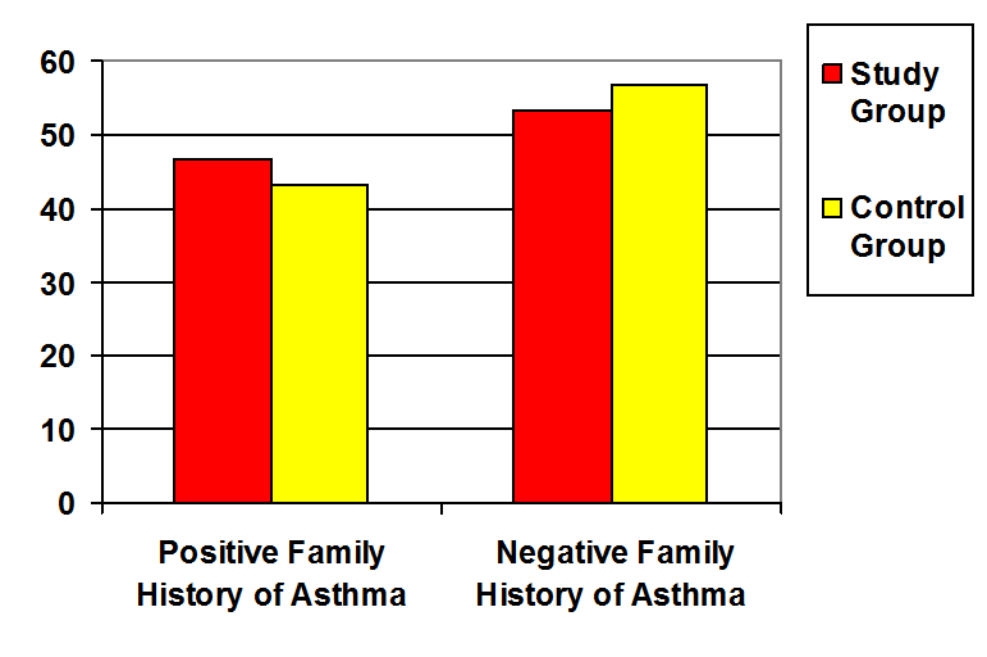


Age Distribution among Study and Control Groups



Family History of Asthma among the study and control group

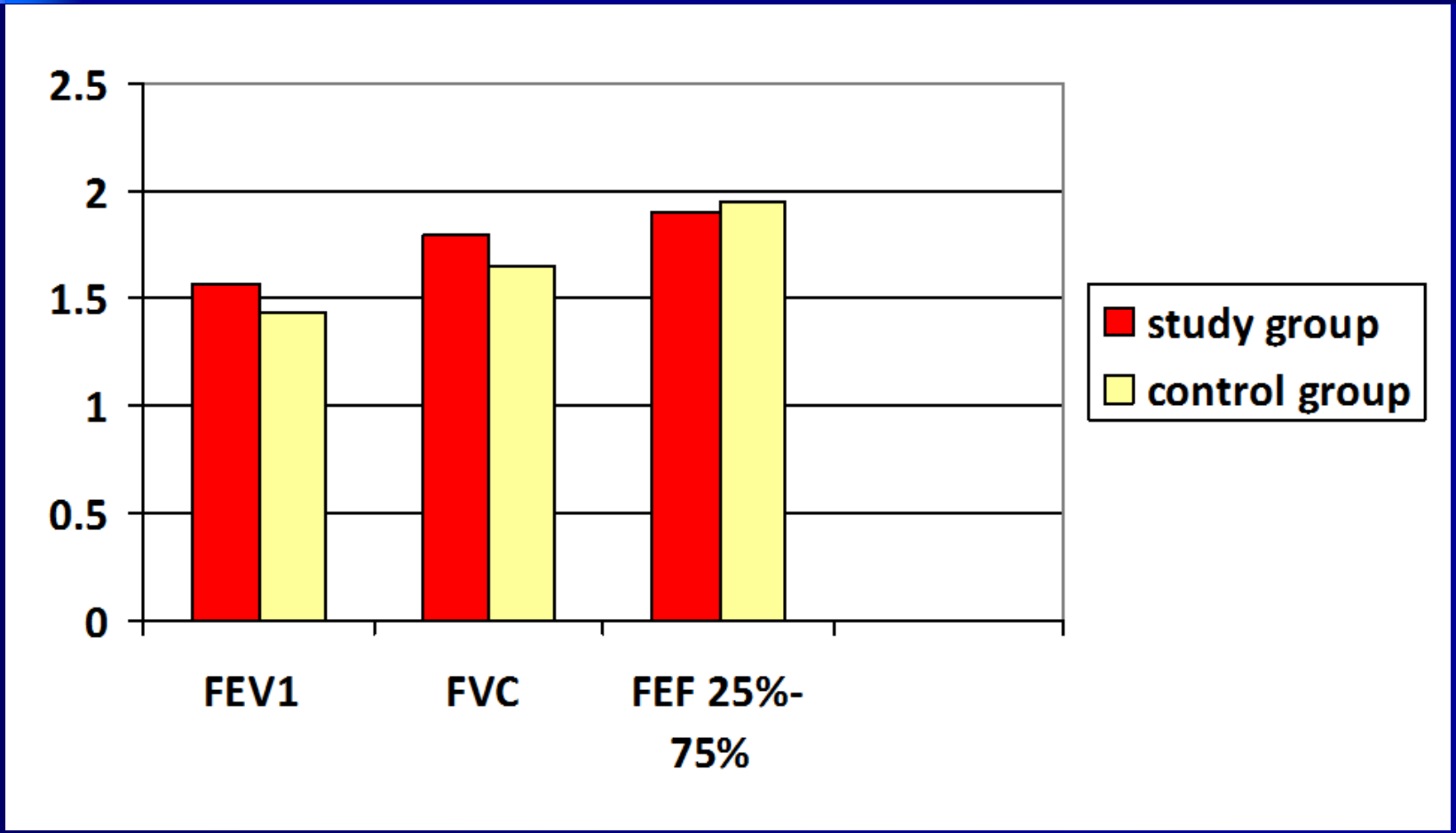
		Study group		Control group		
		Positive	Negative	Positive	Negative	
Family History of Asthma	N (%)	14 (46.7%)	16 (53.3%)	13 (43.3%)	17 (56.7%)	NS



Pulmonary functions before the trial for both groups

		Study group (n = 30)	Control group (n = 30)	p-value
FEV1	Mean ± SD	1.57 ± 0.30	1.43 ± 0.24	(t-test) 0.06 **(NS)**
	Range	1.06 – 2.39	1.08 – 1.99	
FVC	Mean ± SD	1.796 ± 0.343	1.65 ± 0.25	(t-test) 0.06 **(NS)**
	Range	1.17 – 2.58	1.21 – 2.29	
FEV1/FVC	Mean ± SD	87.03 ± 3.66	86.83 ± 3.61	(t-test) 0.84 **(NS)**
	Range	80.1 – 93.7	78.5 – 93.5	
FEF 25%-75%	Mean ± SD	1.9 ± 0.41	1.95 ± 0.36	(t-test) 0.66 **(NS)**
	Range	1.19 – 2.81	1.34 – 2.57	

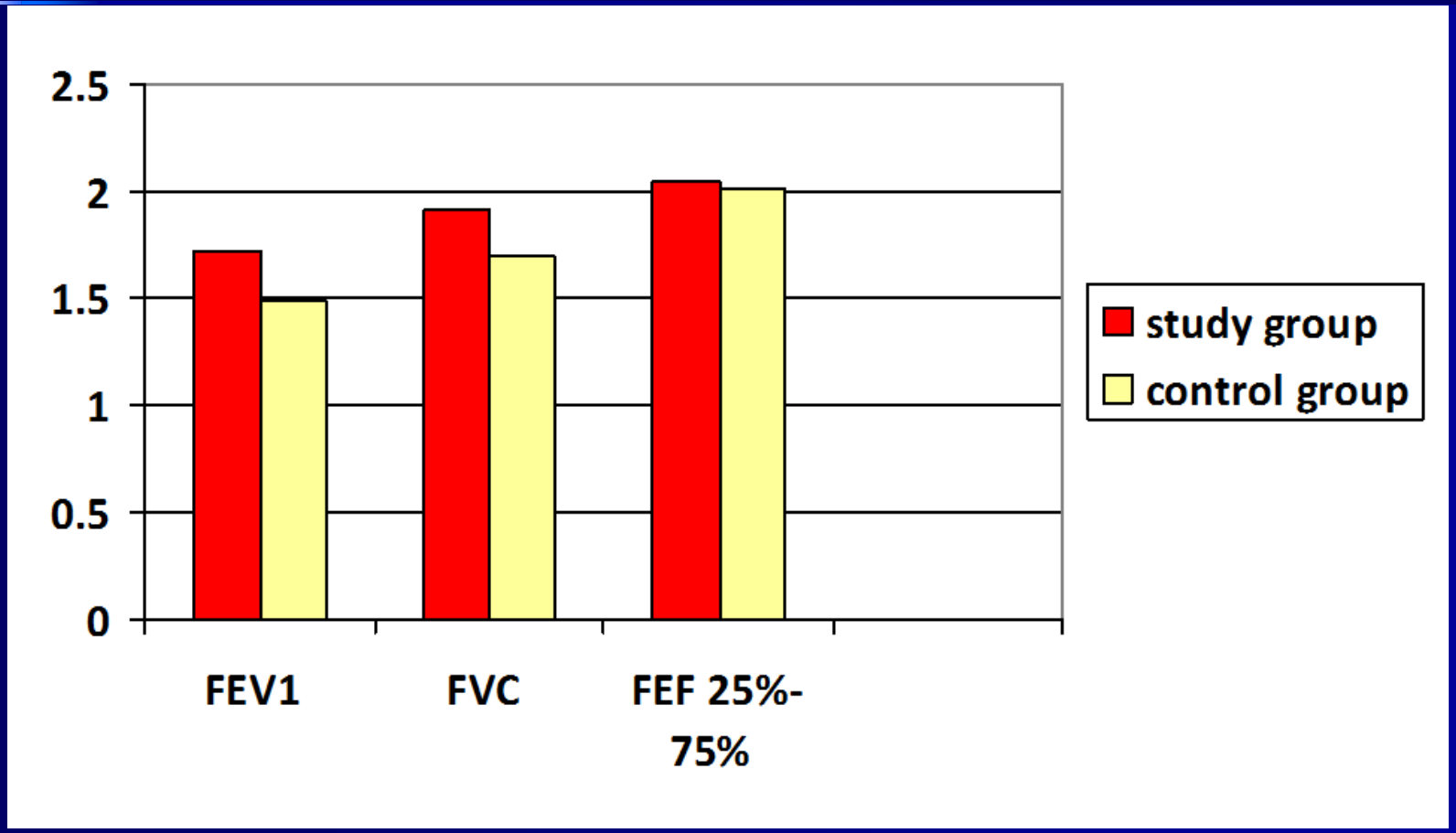
Pulmonary functions before the trial for both groups



Pulmonary functions after the trial for both groups

		Study group (n = 30)	Control group (n = 30)	p-value
FEV1	Mean ± SD	1.72 ± 0.339	1.49 ± 0.225	(t-test) 0.004*(S)
	Range	1.11 – 2.75	1.17 – 2.11	
FVC	Mean ± SD	1.91 ± 0.368	1.70 ± 0.23	(t-test) 0.01*(S)
	Range	1.24 – 2.86	1.29 – 2.33	
FEV1/FVC	Mean ± SD	89.86 ± 4.17	88.09 ± 43.33	(t-test) 0.11 **(NS)**
	Range	82.4 –96.7	76.1 – 95.7	
FEF 25%-75%	Mean ± SD	2.04 ± 0.425	2.01 ± 0.335	(t-test) **(NS)** 0.661
	Range	1.29 – 2.93	1.39 – 2.54	

Pulmonary functions after the trial for both groups

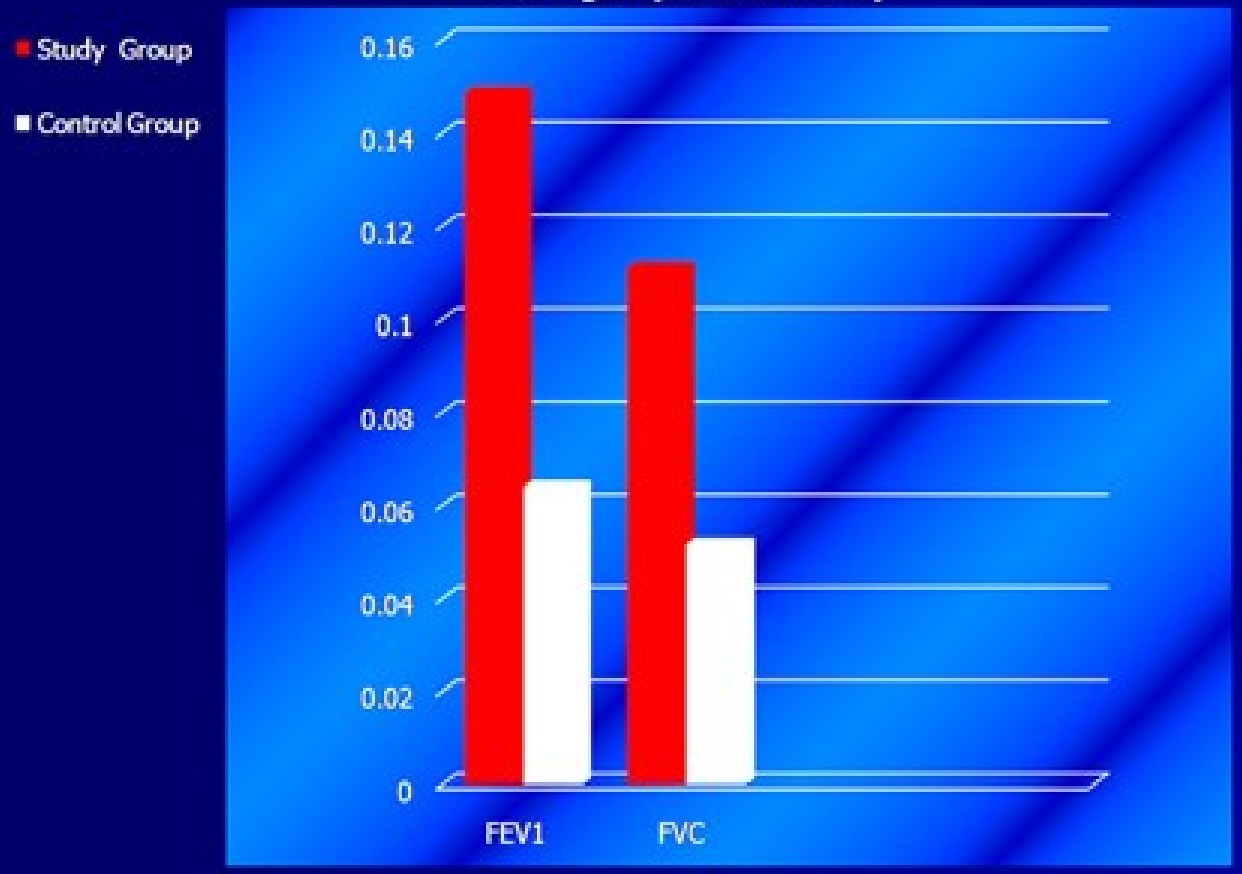


Total Improvement of Pulmonary Functions among both groups of the study

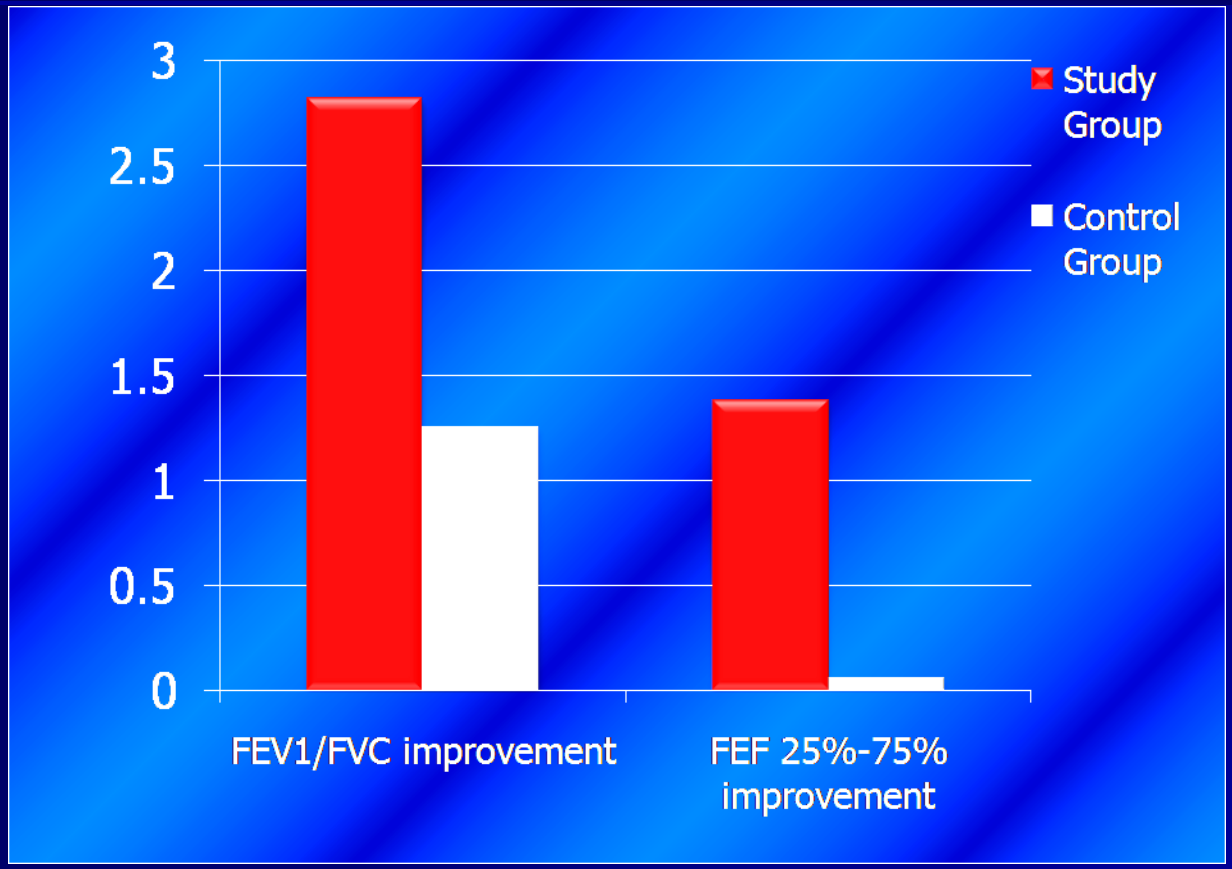
		Study group (n = 30)	Control group (n = 30)	p-value	
FEV1 Difference	Mean ± SD	0.149 ± 0.078	0.069 ± 0.0759	(t-test) 0.000*(S)	S
	Range	0.01 – 0.36	-0.1 – 0.17		
FVC Difference	Mean ± SD	0.11 ± 0.069	0.052 ± 0.083	(t-test) 0.004*	S
	Range	0.0 – 0.28	-0.14 – 0.15		
FEV1/FVC Difference	Mean ± SD	2.82 ± 2.62	1.25 ± 1.966	(t-test) 0.011*	S
	Range	-2.9 – 6.6	-2.4 – 7.9		
FEF 25%-75% Difference	Mean ± SD	1.38 ± 0.085	0.055 ± 0.083	(t-test) 0.000*	S
	Range	-0.02 – 0.32	-0.19 – 0.16		

Improvement of Pulmonary Functions among both groups of the study

Figure 1: Pulmonary Functions (FEV1 and FVC improvement) among both groups of the study



FEV1/FVC and FEF 25%-75% improvement for both groups



Pediatric Asthma Quality of Life Questionnaire

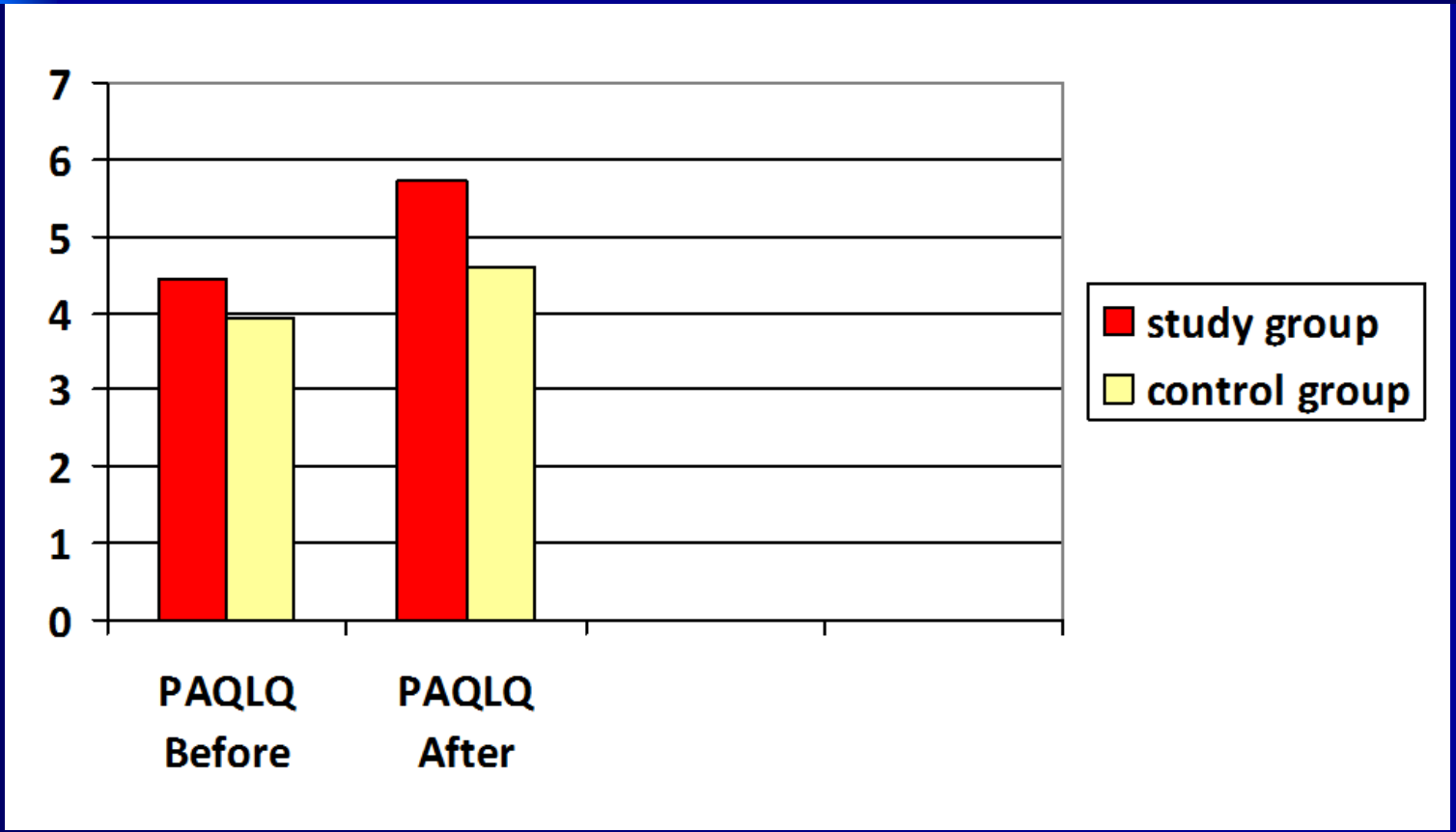
PAQLQ before the trial for both groups

		Study group (n = 30)	Control group (n = 30)	p-value	
PAQLQ	Mean ± SD	4.45 ± 0.74	3.94 – 0.55	(t-test) 0.075	NS
	Range	2.2 – 5.4	2.3 – 5.1		

PAQLQ after the trial for both groups

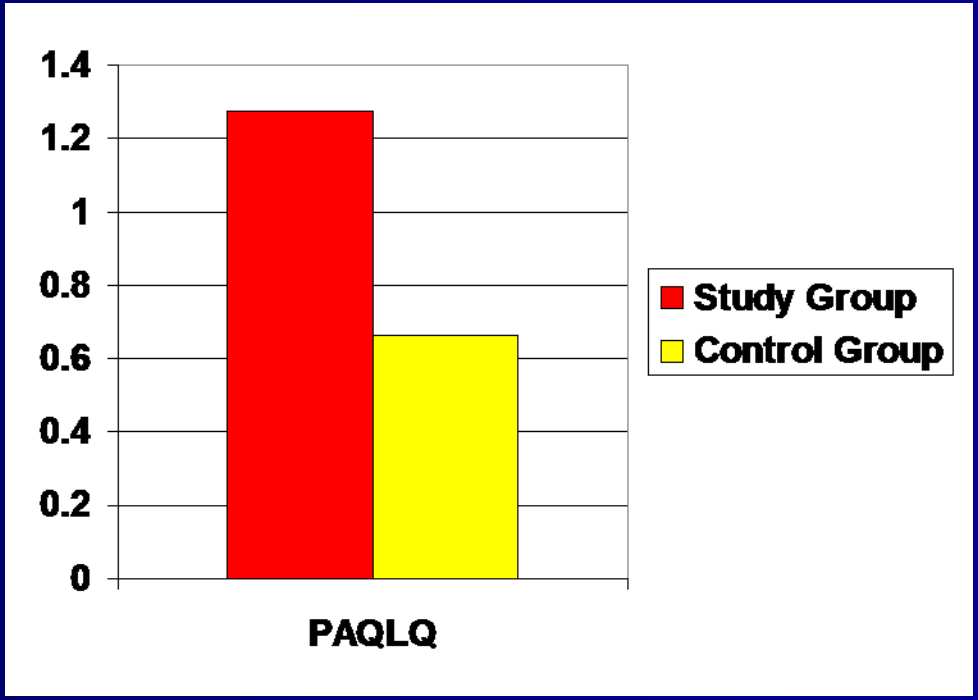
		Study group (n = 30)	Control group (n = 30)	p-value	
PAQLQ	Mean ± SD	5.72 ± 0.93	4.61 – 1.09	(t-test) 0.001*	S
	Range	3.5 – 7.0	2.2 – 6.2		

Pediatric Asthma Quality of Life Questionnaire before and after the trial



Pediatric Quality of Life Questionnaire improvement

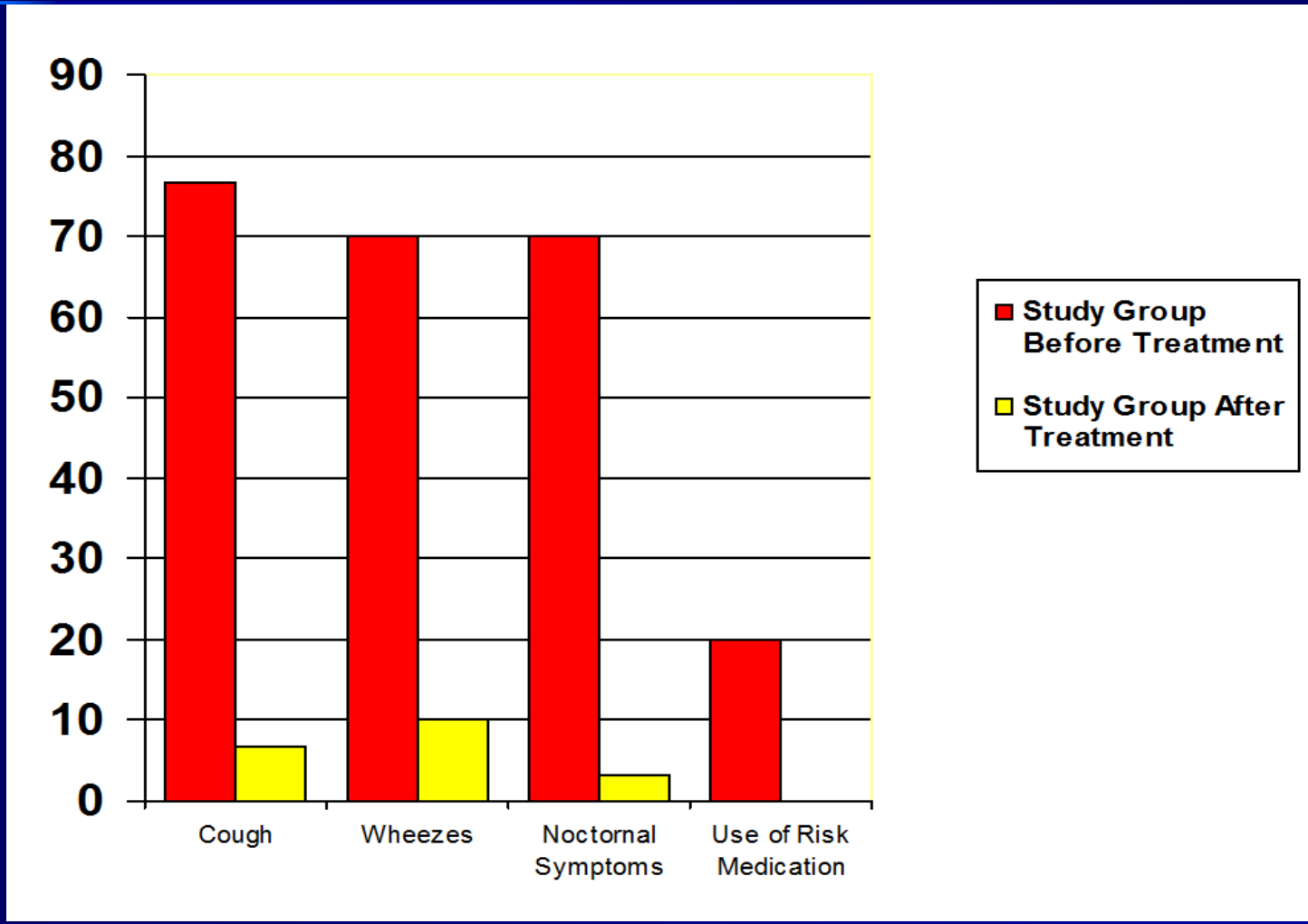
		Study group (n = 30)	Control group (n = 30)	p-value	
PAQLQ Difference	Mean ± SD	1.2733 ± 0.57532	0.6667 – 0.73828	(t-test) 0.001*	S
	Range	0.3 – 2.2	-0.5 – 2.1		



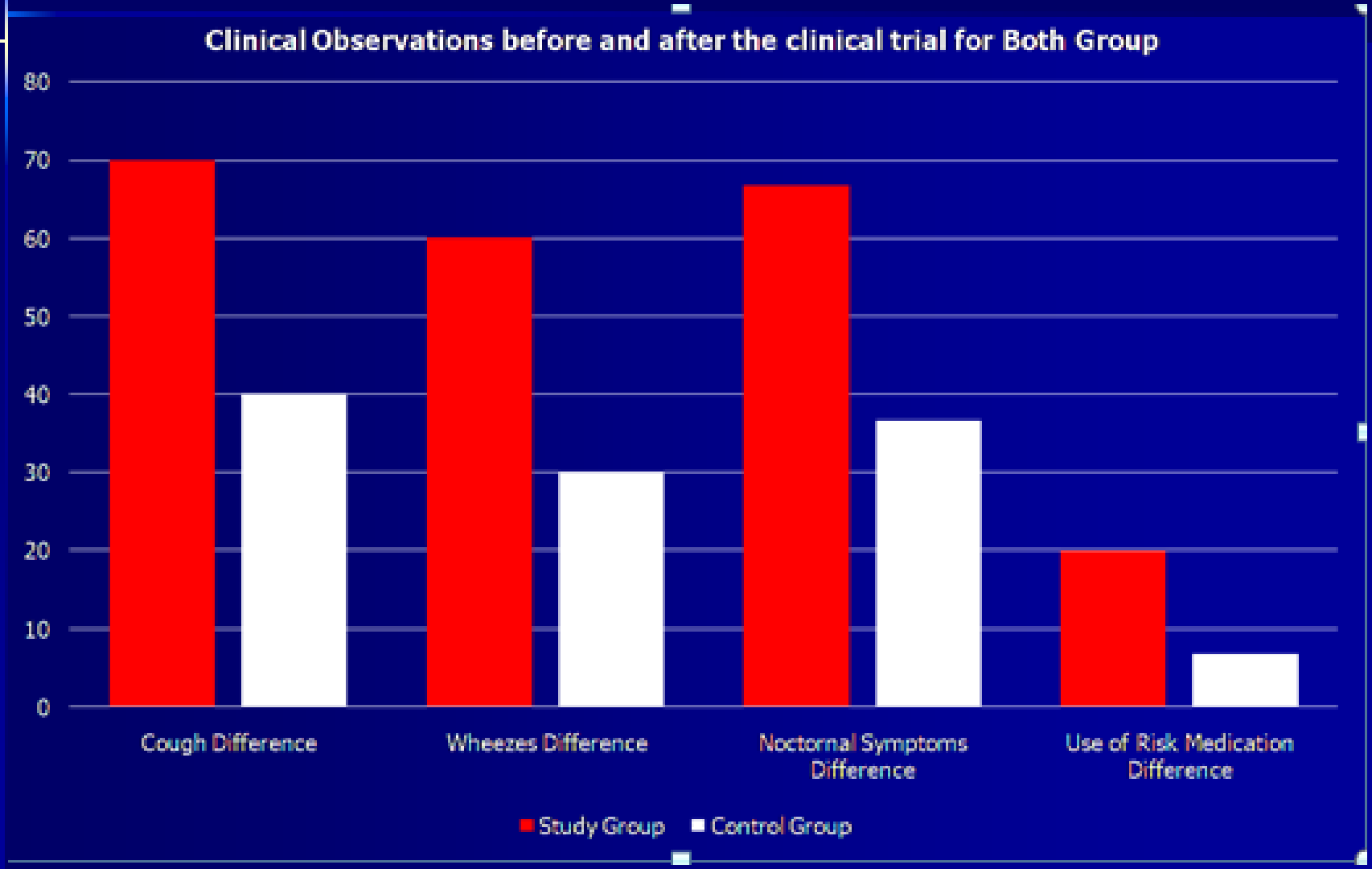
Clinical Observations before and after the clinical trial for both groups and the total improvement between the study and control group

		Study group			Control group				
		Before	After	Difference	Before	After	Difference	P-Value	
Cough	N (%)	23 (76.7%)	2 (6.7%)	21(70%)	24 (80%)	12 (40%)	12 (40%)	(Fisher's exact) **0.02***	S
Wheezes	N (%)	21(70%)	3 (10%)	18(60%)	25 (83.3%)	16 (53.3)	9 (30%)	(Fisher's exact) ***0.02**	S
Nocturnal Symptoms	N (%)	21(70%)	1 (3.3%)	20(66.7%)	23 (76.7%)	12 (40%)	11 (36.7%)	(Fisher's exact) **0.01***	S
Use of Risk Medication	N (%)	6 (20%)	0 (0%)	6(20%)	3 (10%)	1(3.3%)	2 (6.7%)	(Fisher's exact) **0.399**	NS

Clinical Observations before and after the study for Study Group



Clinical Observations before and after the clinical trial for both groups and the total improvement between the study and control group



Conclusion

Conclusion:

- Cupping Therapy may be an effective complementary treatment in asthmatic children,
- it has a significant improvement effect on the pulmonary function of asthmatic children.
- cupping therapy had a significant improvement effect and positive impact on the quality of life of asthmatic children.

Recommendation

Recommendation

- **<u>Based on our findings in this study we recommend that:</u>**
- Cupping Therapy is low cost, safe, effective and can be used as a complementary treatment for asthmatic children
- Further large clinical trial are required to confirm our findings
- Further clinical trials are required to assess the role of cupping therapy as a complementary therapies in other diseases especially in the fields of rheumatology, immunology and allergy.

Thank You