

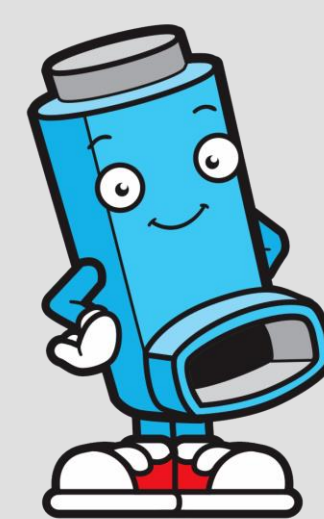


# Quality of Life in Asthmatic Children in Asia: A Systematic Review

Supervisor: Dr. Saira Afzal

Co-Supervisor: Faiza Aziz

Abdul Haseeb Hasan, Abdullah Ali Khan, Abdul Ahad, Aeyza Nasir, Aaima Wasim, Aemen Nizam, Aiman Gul, Aiman Fatima, Aimal Waqar, Abdul Hai



## ABSTRACT

### Objective:

To evaluate the quality of life (QoL) among asthmatic children in Asia.

### Results:

We screened 80 articles and out of those only 3 were selected for the systematic review, collectively including 282 participants. A review was carried out and showed that overall QoL score was 5.43 with a standard deviation of 1.2.

### Methods:

This was a systematic review based on PRISMA guidelines, searching four engines; PubMed, Embase, Scopus and Medline. Those studies were included which evaluated the QoL using PAQLQ (Pediatric Asthma Quality of Life Questionnaire) using the overall score and scores on the individual physical, emotional and symptoms domains.

### Conclusion:

The total QoL score proved that the asthmatic children in Asia have a low quality of life.

## INTRODUCTION

Asthma is a pulmonary inflammatory disease marked by bronchial hyperreactivity, reversible airflow restriction, and episodic acute asthma attacks. Allergic which is also called extrinsic asthma usually develops in childhood and is triggered by allergens such as pollen, dust mites, and certain foods. The cardinal symptoms are intermittent cough, dyspnea and high-pitched expiratory wheeze. Childhood is a time in one's life when many of the behavioral patterns that will be used later in life are formed. As a result, it's important to evaluate how a chronic illness like asthma affects a child's quality of life and social activities. In Asia, asthma is usually prevalent because of the increased number of allergens such as smog which impede the daily activities of children.

According to the Global Burden of Disease collaboration in 2015, asthma is the most common chronic respiratory disease worldwide, with an estimated 400,000 deaths, or over 1000 deaths every day(1). The prevalence of children with asthma below 18 years old is estimated at 7.1%(2). According to reports, one out of every five children with asthma is treated in an emergency department (ED) for asthma-related care, and around half of all children with asthma miss at least one day of school each year due to asthma. In pediatric asthma, quality of life (QOL) is frequently used as an outcome measure to characterize how a child's asthma affects his or her daily life. Emotional issues affect 25-40% of asthmatic children, with the most common symptoms being excessive psychological dependence on parents and increased anxiety(3). Childhood asthma has been more common in China during the previous few decades. According to a survey conducted in 2000, asthma prevalence had risen to 0.52 percent -3.34 percent, with a countrywide prevalence of 1.54%(4). In 2010, a repeated survey found that the prevalence was estimated to be 0.42%-5.37% with a national prevalence of 2.32%(5). A study of 3,283 school children (average age, 9.03 ± 1.99 years; 52.3% boys and 47.7% girls) was conducted between February 2003–February 2004 in Qatar. The prevalence rate of asthma in Qatari schoolchildren is 19.8%(6). Oman has a pediatric asthma rate of 20.7%(7). A study was carried out from January 2014 to December 2014 in Dhaka. The mean age was 12.5±2.9 years. QOL in children with asthma decreases with age as the disease intensity increases with age. Female asthmatic children had lower overall score of QOL (p=0.017), as well as lower activity domain score (p<0.001). Emotional domain score and QOL was found lower in children with single parent (p=0.021) and low monthly family income (p<0.001)(8).

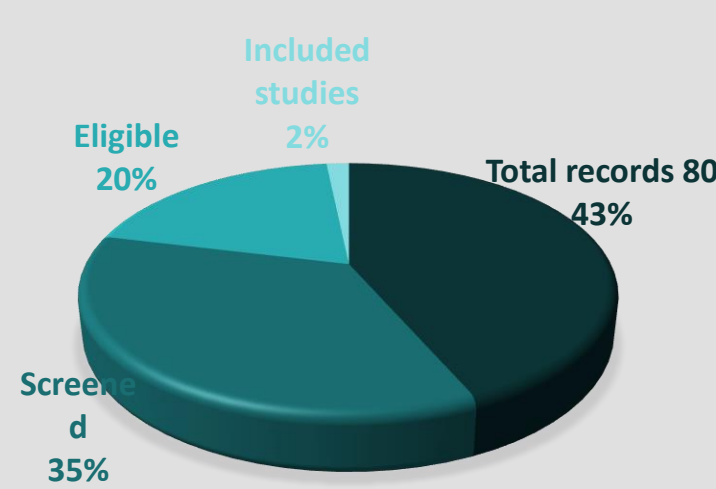
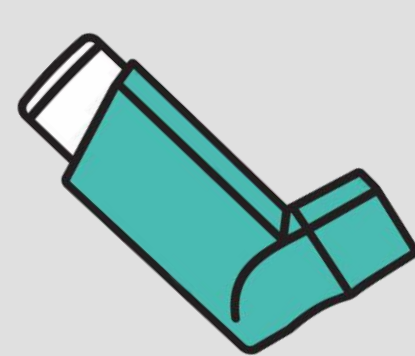
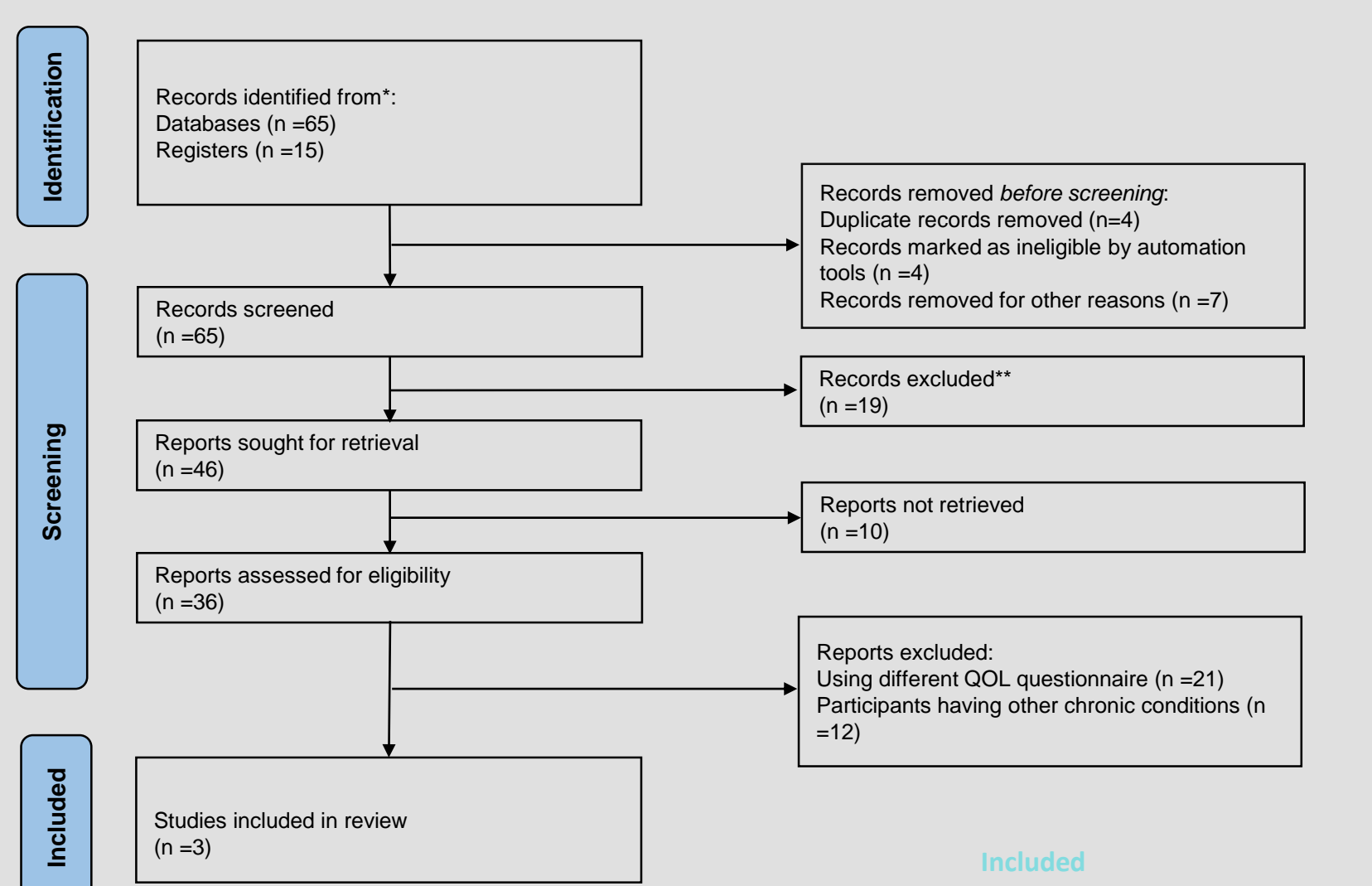
The purpose of our research is to determine the scope of the effect of asthma on the quality of life in children in Asia. This study will add to the evidence base that will be used to design future treatment, research and make policy decisions in this region. Knowing the incidence of asthma in children in Asia is critical for appropriate resource and service allocation.

## RESULTS

Of the 80 studies that were screened, only 3 were included in this systematic review. As we talk about the study design, there was a cross sectional, prospective and a cohort study. The Studies included in the systematic review had a total of 282 participants. All the participants were between 7-17 years of age.

Weighted analyses of the included studies shows the assessment of QoL of all the 282 participants by PAQLQ scores. Mean age of all the participants is 11.74 with a standard deviation of 2.73. The overall QoL score by PAQLQ of these included studies found out to be 5.43 with a standard deviation of 1.2. Although the individual scores of the studies are different than the overall score. QoL score of Hassan et al(8) is 5.5 which is higher than the other studies which indicate that the asthmatic children in Bangladesh have higher QoL than the children of India and Thailand. This is not an anomaly as different factors such as environmental pollution and the child to area ratio play an important part in this score. This has not changed the fact that the asthmatic children in Asia have a low QoL scores which is evident by the mean QoL score on the basis of PAQLQ and QoL of Asian children continue to deteriorate as they grow older due to severity of the disease(8).

### PRISMA Flow Diagram of Selection of Studies for Inclusion in the Systematic Review



## OBJECTIVES

1. Assessment of Asthmatic children for physical, mental, symptom score
2. Determining the score of effect of asthma on QOL.

## METHODS

### Study Design:

Systematic Review.

### Inclusion Criteria:

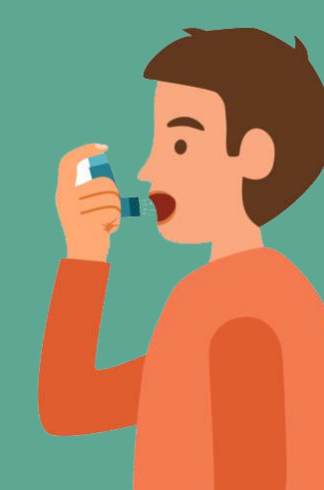
- Researches measuring QOL in children
- Of Asian origin.
- Between the ages of 7-17 years
- Using PAQLQ as an assessing tool.

### Exclusion criteria:

- Researches including children:
- of other age groups
- having other diseases
- belonging to other regions.

### Assessment Tool:

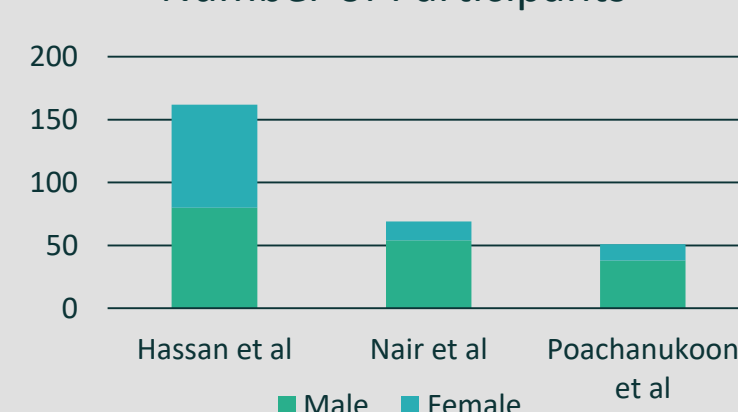
PAQLQ



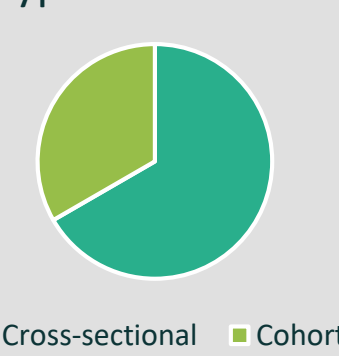
### General Characteristics of Included Studies

	Author	Study Design	Year of Study	Country	Number of participants	Age of participants (years)	Primary Outcome
1	Hassan et al	Cross sectional	2017	Bangladesh	162	7-17	Female patients had overall low score of QOL than males
2	Nair et al	Prospective	2014	India	69	7-17	Stable group had higher PAQLQ scores than unstable group
3	Poachanukoon et al	Cohort	2006	Thailand	51	7-17	A significant improvement in scores of activity domain and symptom after intervention but no change in emotional domain

### Number of Participants



### Types of Studies



### Weighted Analyses of the Included Studies

Characteristics	Hassan et al	Nair et al	Poachanukoon et al
Total Sample	162	69	51
Male	80	54	38
Female	82	15	13
Mean age	12.5 (SD=2.9)	11.31 (SD=2.65)	11.4 (SD=2.7)
Overall QOL score	5.5 (SD=0.5)	Pre intervention {4.66 (SD=1.28)} Post intervention {5.91(SD=0.59)}	Stable group {6.2(SD=1.9)} Unstable group {5.4(SD=1.3)}
Mean QOL of three studies	5.43 (SD=1.2)		

### Quality Appraisal of the Included Studies

Questions for appraisal	Hassan et al (Cross sectional)	Nair et al (Cross sectional)	Poachanukoon et al (Cohort)
<b>For Cross sectional Studies</b>			
Were the criteria for inclusion in the sample clearly defined?	YES	YES	
Were the study subjects and the setting described in detail?	YES	YES	
Were objective, standard criteria used for measurement of the condition?	YES	YES	
Were the outcomes measured in a valid and reliable way?	YES	YES	
Was appropriate statistical analysis used?	NO (not needed)	YES	
<b>For Cohort Study</b>			
Were the two groups similar and recruited from the same population?			YES
Was the exposure measured in a valid and reliable way?			YES
Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?			YES
Were the outcomes measured in a valid and reliable way?			YES
Was appropriate statistical analysis used?			YES
Total Score	4	5	5

## Discussion:

Asthma is a chronic disease which has a great impact on children's health as well as their physical and emotional capabilities. It results in high number of absentees from school, fewer participation in extracurricular activities and mental stress not only on children but also on the parents or guardians. For the last twenty years, health related QoL in asthmatic children has been assessed by the usage of PAQLQ around the world which has helped in managing the treatment and control of asthma.(10)

In the present, we conducted a systematic review of the studies which used the PAQLQ in order to assess the overall as well as the individual scores in the physical activity, emotional and symptom domain. By reviewing the studies, it was found out that the overall QoL as well as the individual domains of asthmatic children in Asia is low. All the three included studies(8,11,12) used the PAQLQ for assessing the QoL in the included participants. However, all the three studies had different ways of approaching the results.

Hassan et al(8) depicted that score of the activity domain was quite low as compared to the symptom and emotional domains.

Nair et al(12) had similar results in the individual domains, but the study also pointed out that after intervention scores of activity and symptom domains increased while emotional domain had no effect. This result pointed out that parents or guardians take a lot of emotional stress if their child is affected by such chronic disease as compared to the child itself.(11)

Roncada et al(13) conducted a meta-analysis on assessing the QoL in asthmatic children and their guardians which included studies from around the world. The meta-analysis had a greater overall QoL score than the present systematic review. The difference in the overall score is due to the fact that participants in those studies were from continents other than Asia which have a higher quality index air. Moreover, those regions have advanced treatment measures which lead to a higher quality of life than the children in Asia. Our systematic review clearly indicates that the children in Asia suffering from asthma have lower quality of life than the children around the world.

## REFERENCES

