

# Assessment of the quality of life in children with asthma using paediatric asthma quality of life questionnaire: A prospective study

V B Kulkarni<sup>1</sup>, S D Kulkarni<sup>2\*</sup>

<sup>1</sup>Assistant Professor, Department of Paediatrics, Bharati Vidyapeeth Medical College, Pune - Katraj Road, Pune, Maharashtra, INDIA.

<sup>2</sup>Associate Professor, Department of Paediatrics, M I M S R Medical College, Latur, Maharashtra, INDIA.

Email: [prasanna4646@yahoo.com](mailto:prasanna4646@yahoo.com), [drsdkul@yahoo.com](mailto:drsdkul@yahoo.com)

## Abstract

**Background:** Asthma puts a serious burden on the child's health-related quality of life (HRQoL), despite the availability of effective and safe treatment. The aims of asthma management are not only elimination of the symptoms and normalization of the lung function, but also to improve quality of life. Early detection and counselling reduces the prevalence of asthma symptoms and improve health-related quality of life in children. The aim of the study was to assess the role of the TNO-AZL QOL questionnaire in order to assess the QoL as a marker of clinical stability in asthmatic school children. **Material and Methods:** In this study, assessment of the quality of life in 100 children of both sexes in the age group of 6-12 years with asthma using pediatric asthma quality of life questionnaire was done. **Results:** In our study children with asthma had shown significant change in pulmonary function tests with protocol based treatment. The TACQOL scores as reported by the children and their parents were lower in the children with asthma after counselling compared to before counselling. **Conclusion:** Education combined with counselling administered in addition to the conventional pharmacologic treatment improved the quality of life. TACQOL is simple and easy to use and gives a new dimension in assessment of children with asthma.

**Key Words:** Asthma, TACQOL scores, assessment, Quality of life.

## \*Address for Correspondence:

Dr S D Kulkarni, Associate Professor, Department of Paediatrics, M I M S R Medical College, Latur, Maharashtra, INDIA.

Email: [drsdkul@yahoo.com](mailto:drsdkul@yahoo.com)

Received Date: 10/04/2017 Revised Date: 12/06/2017 Accepted Date: 07/08/2017

DOI: <https://doi.org/10.26611/1014323>

## Access this article online

Quick Response Code:	Website: <a href="http://www.medpulse.in">www.medpulse.in</a>
	Accessed Date: 23 August 2017

## INTRODUCTION

Quality of life (QoL) is one of the most important outcomes in the evaluation of patients with chronic diseases<sup>1</sup>. QoL measures can provide information on how chronic diseases interfere in the social, emotional, and physical domains of the patient from his/her own perspective. Asthma in children is a chronic disease with high prevalence and morbidity, resulting in significant personal, familial, and social consequences<sup>2</sup>. Sports participation, school attendance, and quality of life are

important issues for children with asthma and their parents. Despite the availability of effective and safe treatment, asthma puts a serious burden on the child's health-related quality of life (HRQoL). The impact that illness and/or their treatment may have on the lifestyle, psychological balance, and degree of well-being of patients, such as they are perceived, considered, and valued are considered in health-related quality of life<sup>1</sup>. Conventional measurements provide useful information about airway status but provide little information about functional impairments that are important in a patient's everyday life. QOL assessment is increasingly recognized as an important health outcome measure in asthma<sup>3,4</sup>. Previous studies indicate that children with asthma and their families experience significant impairment in QOL<sup>5</sup>. Children and adolescents with well-controlled asthma and lower asthma severity, which lead to a reduction in symptoms and medication use, can have a better quality of life<sup>6-8</sup>. The aim of the study was to assess the role of the TNO-AZL QOL questionnaire in order to assess the QoL as a marker of clinical stability in asthmatic school children.

## MATERIAL AND METHODS

In this observational interventional prospective study, a total of 100 children of both sexes in the age group of 6-12 years who were being referred for the treatment of bronchial asthma to the asthma clinic either for the first time or of follow up were included. Children with other chronic illness or with known psychological or mental problems or parents who were unlikely to give a reliable history or bring the child for regular follow-up were excluded. Hundred and twenty consecutive children in the age group 6 to 12 years with asthma as per inclusion criteria specified were enrolled. Informed consent was taken from the parents. A detailed history covering personal history, family history, living conditions, known allergies and current as well as previous treatment was elicited. Physical examination including anthropometric measurements was performed at the initial visit. Out of 120 children 20 were excluded due to various reasons as per the exclusion criteria mentioned above. The remaining 100 children underwent spirometry at the time of enrolment. The children who were unable to do spirometry were also trained in the performance of spirometry. Spirometry was performed by a trained technician using compact (MIR-Medical international research, REF-Spirolab II, 125-00155. Manufacture-Italy). Quality of life was analyzed by using TNO-AZL QOL questionnaire (TACQOL). It is available as a measure of health and functional-status that incorporates appraisal of health-status. The questionnaire was administered in three language versions, English, Hindi and Marathi. The choice of language rested with the children and parent. The questionnaire consisted of questions in 4 domains: 6 for complaints, 7 for situations (symptoms provoked during activities), 9 for emotions and 6 for treatment and medications. This was administered by a single trained interviewer not involved in prescribing therapy. Parents were allowed to explain a question to the child when needed, but not to assist in answering. Children were asked to choose response responses from the four-point response option card, wherein each item was scored from 0 to 4. If the answer was affirmative, the degree to which the child was bothered by that problem was also asked. The score of 0 was awarded if the child felt bad, 1 if the child felt the problem was quite bad, 2 if the child felt not so good, 3 if the child felt fine and 4 if the problem was absent. Statistical analysis was done with the help of SPSS software version 11. Comparison among study group for before and after intervention was done with the help of student paired 't' test.

## RESULTS

Majority of the children were males (81%) while 19% children were females. Family history of asthma, allergic or atopic dermatitis was present in 29 children (n=29) however there was no family history of any allergic disorder in 71 children (n=71). Children between 6-8 years contributed to the 48% of the total study group. Most of the children (n=70) did not receive any form of treatment for asthma before participating in the study, however 30 children (n=30) received some form of asthma treatment asthma before joining the study.

**Table 1:** Distribution of patients according to type of asthma

Type of asthma	Number	Percentage
Mild intermittent asthma	29	29%
Mild persistent asthma	30	30%
Moderate persistent asthma	34	34%
Severe persistent asthma	07	07%
<b>Total</b>	<b>100</b>	<b>100%</b>

Out of hundred children only 7 children were having severe persistent asthma (Table 1). Out of hundred 35 children (n=35) used metered dose inhalers, 31 children used MDI with spacer, 30 children used MDI with spacer and mask and only 4 children were comfortable by using rotahaler. The TACQOL scores as reported by the children and their parents were lower in the children with asthma after counselling compared to before counselling. The total quality of life score before and after counselling and treatment showed that mean score before intervention was 89.80 whereas mean score after intervention was 98.49. The improvement in total QOL score was statistically significant (p<0.005).

**Table 2:** Comparison of variables 'before' and 'after' counselling

Variable	Mean±SD	IQR	Paired T test	P value
FEV1/FVC				
Before	86.08±6.26	7.79	7.81	<0.005 (significant)
After	89.91±3.64	3.85		
Complaints				
Before	14.81±3.86	6.00	12.88	<0.05 (significant)
After	18.38±3.18	4.00		
Situation				
Before	22.74±3.38	4.00	8.06	<0.001 (significant)
After	24.62±2.90	2.75		
Feelings				
Before	33.52±3.23	4.00	5.41	<0.005 (significant)
After	34.98±1.89	2.00		
Medication				
Before	18.73±3.23	4.00	7.22	<0.005 (significant)
After	20.51±2.41	2.00		
<b>Total QOL score</b>				
Before	<b>89.80±9.48</b>	<b>12.00</b>	<b>13.47</b>	<b>&lt;0.005 (significant)</b>
After	<b>98.49±7.13</b>	<b>8.75</b>		

## DISCUSSION

For assessment of QoL in children with asthma, TACQOL scores were used, because it was validated and widely applied in many countries worldwide, and it monitors the most important features of HRQoL, physical as well as psychological features. QOL for a child with asthma has been defined as the measure of emotions, asthma severity/symptoms, missed school days, activity limitations and visits to the emergency department. In present study, male predominance was observed. This was also reported in the Brazilian study and Nair et al study<sup>9,10</sup>. Out of hundred children, mild intermittent asthma was seen in 29%, mild persistent asthma was seen in 30%, moderate persistent asthma was seen in 34% and severe persistent asthma were present in only 7% cases. In a study from Postgraduate Institute of Medical Education and Research, Chandigarh (PGIC), 85% of children in the study had moderate persistent asthma<sup>11</sup>. In a study by Nair et al, mild intermittent asthma was seen in 13.04% cases. Mild persistent type of asthma was seen in 33.33% cases and 53.62% were classified as moderate persistent type of asthma. No cases of severe persistent asthma were present in their study<sup>10</sup>. In the Brazilian study moderate persistent type of asthma accounted for 67.8%<sup>9</sup>. In the study from Turkey majority of cases (81.6%) belonged to the mild intermittent category<sup>12</sup>. Conventionally objective measures of pulmonary function are used to evaluate progress; although there is no gold standard tool to assess this. Measurement of pulmonary function required high degree of patients cooperation and also reasonably good pulmonary reserve to perform the tests. Therefore, interpretation of these objective measures is often hampered by subjective factors, particularly in younger children. Besides, the reading reflect a one-time measurement of the child's status unless recorded serially, which is often not feasible in home-based care. Assessment of quality of life is able to overcome several of these limitations, since it provides information of the overall status over a longer duration. There are a few tools available in western countries for evaluating QOL in asthmatic children<sup>13</sup>, however they cannot be directly extrapolated to Indian children due to socio-cultural differences and behavioural life-style variations, 'appraisal of health-status, is a new concept that may be very important. One of the strengths of our study is the use of a disease specific tool, the TACQOL-asthma which ensures a measurement of health status as well as appraisal of health problems. In our study children with asthma had shown significant change in pulmonary function tests with protocol based treatment. The extensive counseling of the children has contributed to the positive outcome. This study has shown that

improvement in QOL score after counseling and treatment of asthma is possible and it is comparable with objective measures of pulmonary function. Correlation between TACQOL score and clinical parameters such as FEV1 showed statistical significance with activities and symptoms domains. In the present study, education combined with counselling was administered in addition to the conventional pharmacologic subjects quality of life, and the intervention also improved their knowledge of asthma and their emotional status, both of which may help with the short-term and long-term management of asthma. Protocolled treatment, education and psychological counseling improved the quality of life in our group of asthmatic children. These measures also alleviated the negative emotions and psychological distress associated with asthma. TACQOL is simple and easy to use and gives a new dimension in assessment of children with asthma.

## REFERENCES

1. World Health Organization. The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. *Soc Sci Med* 2005; 41(10): 1403-1409.
2. Silva N, Carona C, Crespo C, Canavarro MC. Quality of life in pediatric asthma patients and their parents: a meta-analysis on 20 years of research. *Expert Rev Pharmacoecon Outcomes Res.* 2015; 15(3):499- 519.
3. Mc Sweeney AJ, Creer TL. Health-related quality-of-life assessment in medical care. *Dis Mon* 1995; 41: 3-71.
4. Jones PW. Quality of life measurement in asthma. *Eur Respir J* 1995; 8: 885-887.
5. Walker J, Winkelstein M, Land C, Lewis-Boyer L, Quartey R, Pham L, et al. Factors that influence quality of life in rural children with asthma and their parents. *J Pediatr Health Care* 2008; 22:343-50.
6. Bateman ED, Bousquet J, Keech ML, Busse WW, Clark TJ, Pedersen SE. The correlation between asthma control and health status the GOAL study. *Eur Respir J.* 2007; 29(1):56-62.
7. Giubert TW, Garris C, Jhingran P, Bonafede M, Tomazewski KJ, Bonus T. Asthma that is not well-controlled is associated with increased healthcare utilization and decreased quality of life. *J Asthma.* 2011; 48(2):126-132.
8. Miadich SA, Everhart RS, Borschuk AP, Winter MA, Fiese BH. Quality of Life in Children With Asthma: A Developmental Perspective. *J Pediatr Psychol.* 2015; 40(7):672-679.
9. La Scala CS, Naspitz CK, Solé D. Adaptation and validation of the Pediatric Asthma Quality of Life Questionnaire (PAQLQ) in Brazilian asthmatic children and adolescents. *J Pediatr (Rio J)* 2005; 81:54-60.
10. Nair S, Nair S, Sundaram KR. A prospective study to assess the quality of life in children with asthma using the pediatric asthma quality of life questionnaire. *Indian J Allergy Asthma Immunol* 2014; 28:13-8.

11. Singh M, Mathew JL, Malhi P, Srinivas BR, Kumar L. Comparison of improvement in quality of life score with objective parameters of pulmonary function in Indian asthmatic children receiving inhaled corticosteroid therapy. *Indian Pediatr* 2004; 41:1143-7.
12. Boran P, Tokuç G, Pisgin B, Oktem S. Assessment of quality of life in asthmatic Turkish children. *Turk J Pediatr* 2008; 50:18-22.
13. Eiser C, Morse R. A review of measures of quality-of-life for children with chronic illness. *Arch Dis Child* 2001; 84, 205-211.

Source of Support: None Declared  
Conflict of Interest: None Declared

