

## Review Article

# Health Related Quality of Life in Asthma: A Systematic Review

Madeeha Malik<sup>1\*</sup>, Adeela Khan<sup>1</sup>, Azhar Hussain<sup>1</sup>, and Javaid AQ<sup>2</sup>

<sup>1</sup>Hamdard Institute of Pharmaceutical Sciences, Hamdard University, Islamabad Pakistan

<sup>2</sup>Vice President, Pharmacy Council, Pakistan

**\*Corresponding author**

Madeeha Malik, Hamdard Institute of Pharmaceutical Sciences, Hamdard University, Islamabad, Pakistan, Tel: 0092512604385; Email: madeehamalik15@gmail.com

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**Abstract**

Asthma is considered as one of the most common chronic diseases in the world. It is a problem across the globe, and affects estimated 300 million people. As a result of serious physical, social and psychological complications, asthma can reduce health related quality of life.

**Objective:** The aim of this review paper is to systematically identify the barriers of measuring and improving Health Related Quality of Life (HRQoL) among bronchial asthmatic patients by reviewing the past and present literature and summarize the interventions required to improve the HRQoL among such patients in developed and developing countries including Pakistan.

**Methods:** A total of 45 studies were retrieved from databases related to Health Related Quality of Life among asthmatic patients using different search engines such as PubMed, Google Scholar, and Science Direct.

**Conclusion:** The review concluded that there is a need for an integrative understanding of barriers leading to poor HRQoL among asthmatics as core element to highlight gaps in current asthma management. Improvement in management of asthma by introducing well-structured pharmaceutical care delivery in the healthcare facilities can contribute towards better patient knowledge and management and can ultimately improve health-related quality of life of asthma patients.

**INTRODUCTION**

Health Related Quality of Life (HRQoL) is defined as 'the value assigned to duration of life as modified by impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment, or policy [1,2]. HRQoL in many subjects can be affected by factors such as age, social support and socioeconomic status. It is by and large agreed that bringing improvement in the wellbeing and health of subjects is an imperative goal of a therapeutic intervention for both asthma and Chronic Obstructive Pulmonary Disease (COPD) [3,4]. It is also generally agreed that in addition to improving objective clinical outcomes, medical interventions should also focus on improving the HRQoL of the subjects. Asthma has been recognized as an important health issue, despite effective treatment is available for the disease, large population still suffer from symptoms and limitations in their routine tasks and everyday life [5,6]. Measurement of Health related quality of life is of importance in chronic diseases as physiological variables, such as pulmonary function tests and laboratory tests, usually have worse correlation with well-being and functional capacity, areas of much interest to patients. In addition to the above mentioned

reason for HRQoL measurement one more reason is that there is a commonly observed phenomenon when two patients having similar physiological and clinical variables have different responses [7,8]. The aim of this review paper is to systematically identify the barriers of measuring and improving Health Related Quality of Life among bronchial asthmatic patients by reviewing the past and present literature and summarize the interventions required to improve the HRQoL among such patients in developed and developing countries including Pakistan.

**METHODOLOGY**

The electronic databases PubMed, Google Scholar, and Science Direct, were searched for articles published from 1990 to 2015. The search terms used with each database were Health Related Quality of Life, Bronchial Asthma and SF-36. Full-text papers, as well as abstracts, were retrieved and included in review. A total of 45 studies were retrieved from databases related to Health Related Quality of Life among asthmatic patients. The studies were categorized on the basis of their country of publishing into developed countries, developing countries and Pakistan. 25 studies from developed countries, 17 from developing countries

and 3 from Pakistan were included in the review (Table 1). Quantitative cross-sectional surveys as well as qualitative studies were also included.

## RESULTS AND DISCUSSION

### Health-related quality of life in asthma

Asthma is considered as one of the most common chronic diseases in the world. It is a problem across the globe, and affects estimated 300 million people [9]. Morbidity and mortality are significant from asthma. Whether seen from individual perspective or health care delivery system perspective, in order to understand asthma and its care, economic and social factors are necessary to consider [10]. The number of disability adjusted life years (DALY's) lost due to asthma globally are same for liver cirrhosis, diabetes and schizophrenia. Studies from the United States, Latin America, United Kingdom and Asia-Pacific region reported that the absences from days lost from work are the substantial economic and social consequences of asthma [9]. In patients with asthma diagnosis, respiratory symptoms are important indicators of reduced HRQoL [11].

In the past, clinical and psychological measures were used to assess outcomes in asthma. Recently, it is known that these clinical indicators do not provide much information regarding the individual's physical, social and psychological health. HRQoL has been considered as a main variable that need to manage in respiratory diseases [12]. As a result of serious physical, social and psychological complications, asthma can reduce health related quality of life. In addition to physical complications, asthma may cause fatigue, lethargy, mood disorders and behavioral disturbances in asthma patients. In this way all the complications heap up and diminish patient's health related quality of life. HRQoL evaluation provides the primary outcome in patients who suffer from chronic diseases. Asthma is considered to cause reduction in the quality of life. Asthma symptoms lead to the reduction in physical, social and psychological health domains [13]. HRQoL assessment in patients with chronic diseases such as asthma is considered more useful as it cannot be healed completely, just treated, as the achievement of the best possible quality of life becomes the paramount objective in the management of the patient. As a result, HRQoL measures are largely being utilized into clinical research in asthma. The major goals of asthma treatment are improving individual's quality of life by preventing recurrent exacerbations, maintaining normal activity, maintaining 'normal' lung function, preventing troublesome symptoms and providing the required medications with minimum adverse effects[14,15].

### Importance of health-related quality of life assessment in asthma

It has been proposed that there are three major reasons for providing treatment to patients with asthma; to prevent future morbidity, to prevent mortality and to improve the health status of asthma patients [16]. To achieve the first two mile stones most traditional clinical measures of asthma monitors the airways status (symptoms, airways hyper responsiveness, spirometry and medication use). However in past, it was believed that HRQoL can also be monitored by these measures. Certainly, patients with increased airway obstruction and hyper responsiveness had poor HRQoL than the patients with mild asthma, but with time evidence proved that there is mild to moderate correlation between HRQoL and clinical measures of asthma severity [17,18]. So, to obtain a complete picture of patient's health status, along with traditional clinical measures HRQoL needs to be measured.

Many authors have highlighted the functional impairments that are problematic to asthma patients [13,19,20]. Adult asthma patients are disturbed with symptoms such as wheeze, shortness of breath, cough and chest tightness. Many asthma patients experience limitation while performing physical activities like sports, shopping, climbing stairs and hurrying. Allergens can also make daily activities like, vacuuming, gardening and hobbies difficult to perform. Environmental stimuli, like cigarette smoke, changing weather conditions and strong smells may limit social activities. Asthma patients usually experience night time disturbance and thus feel tired all day long. In addition to the above mentioned problems, they experience fear and concerns about their asthma and that it will limit their activities. Similarly, Occupational asthma has its own limitations, with their HRQoL being poor as compared to the patients having non occupational asthma [21,22].

### Overview of impact of asthma on health related quality of life in developed countries

Many researches are being carried out in developed countries on the subject of health related quality of life in asthma patients using different tools and techniques including SF-36 and asthma-specific quality of life questionnaire [23, 24]. A study was conducted in UK to assess the impairment in health related quality of life in asthmatics using generic Adult Quality of Life Questionnaire (AQLQ) and also to evaluate AQLQ. Results highlighted that quality of life is poor and impaired in patients with asthma and AQLQ is a useful tool for assessing HRQoL [25]. Factors like advancing age, poor control of asthma and lower literacy level have a negative impact on HRQoL in asthma patients [26]. Asthma control is considered as an important factor

**Table 1:** Details of Countries and Number of Included Papers.

| Regions              | Number of papers | Countries  |
|----------------------|------------------|--|
| Developed countries  | 25               | USA, Australia, UK, Japan, Germany, Belgium, Switzerland, Sweden, Canada, Denmark, Greece, Spain, Italy, Finland, Ireland, Netherlands, South Africa |
| Developing countries | 17               | Malaysia, China, Turkey, Saudi Arabia, India, Qatar, Iran Jordan   |
| Pakistan             | 3                | -  |
| Total                |                  | 45   |

in improving health related quality of life. A study conducted in France reported that asthma control has no significant impact on HRQoL but some domains of generic SF-36 questionnaire used for assessment of HRQoL in different diseases were statistically different in patients with asthma control and no control [27].

Although asthma is influenced by many factors that affects HRQoL [28], there are also inconsistent reports regarding age. It is a believed fact that HRQoL in elderly patients is also compromised but according to some studies HRQoL is worst in elderly population while some say that elderly people are less depressed by their illness as compared to younger adults. A study conducted in Sweden used asthma HRQoL questionnaire for assessment of QoL in asthmatic patients. The findings reflected that health related quality of life is worse in asthma patients. Several factors were also important to consider in patients with poor HRQoL such as female sex, smoking habit and asthma severity etc [29]. Advancing age is reported to be linked with poor health related quality of life results. Study conducted in USA showed that health related quality of life worsens with aging [30]. Poor levels of health literacy has been reported in patients with a lower level of education, as well as, more delayed diagnosis of asthma, lower mathematical skills, poorer access to health care or poor adherence to healthy lifestyles, which could contribute to the worsening of HRQoL observed in these patients [31]. In USA, a study used S. Tofhla, Asthma Quality of Life Questionnaire (AQLQ), SF-36 scores and emergency department utilization for asthma for assessment of HRQoL and health literacy in asthma. The study reported that higher health literacy was associated with higher perceived self-efficacy in asthma management or a greater will to actively participate in the decision-making process [32].

Studies were conducted to find out the effect of guideline treatment on HRQoL. It is believed that patients in whose treatment standard treatment guidelines are followed have better health status [33,34]. Results of a study reported that asthmatic patients in which standard treatment guideline is followed have good HRQoL and vice versa [14]. Similarly research has been conducted to assess the impact of different class of drugs on asthma patients health related quality of life and in a six month randomised trial patients with asthma were advised to take different corticosteroids in equipotent doses according to global initiative on asthma (GINA) guidelines. Quality of life was seen improving in patients using fluticasone propionate in comparison to those using budesonide or beclomethasone dipropionate [35].

### Overview of impact of asthma on health related quality of life in developing countries

Health-related quality of life in childhood bronchial asthma was monitored in Egypt using pediatric asthma quality of life questionnaire (PAQLQ). Patients with physician diagnosed asthma were included in the study and was seen that Asthma has adverse effects on health related quality of life and control on certain dimension of HRQoL can improve quality of life [36]. In Turkish children HRQoL was also assessed using PAQLQ. Results showed that majority of population i.e. 51% stated that asthma has negative impact on their HRQoL [37]. A study from India used the generic Short Form 36 (SF-36) questionnaire and disease-specific HRQL questionnaire; the St George's

Respiratory Questionnaire (SGRQ) for assessment of HRQoL in asthma. The results revealed that health related quality of life deteriorates with the intensity and severity of disease and also with progressing age [38]. Similarly poor health related quality of life was reported in Thailand in patients who have respiratory problems than the healthy individuals using generic Short Form 36 (SF-36) questionnaire [39]. A study from Nigeria reported that asthma has significant impact on health related quality of life [40]. Increased impairment in HRQoL has been reported more in females, middle age and obese patients indicating that gender, age and body mass index are the determinants of HRQoL in asthma patients [15].

There are various determinants of HRQoL among asthmatic patients such as age, gender, marital status, socioeconomic status etc [5,41]. Results from a study conducted in South Africa highlighted that duration of asthma, body mass index, asthma severity, medication use and gender have an impact on HRQoL in asthmatic patients [42]. Bronchial asthma has major impact on the health related quality of life of patients and is the major cause of morbidity. A study conducted in India used Asthma Quality of Life Questionnaire (AQLQ) and Asthma Control Questionnaire (ACQ) to assess HRQoL in asthma and reported that health related quality of life was impaired in asthma patients. According to the study there was more limitation in the symptoms domains than the rest of HRQoL domains. Female health related quality of life was more impaired than male asthma patients in symptoms domain. Underweight patients who had BMI 25 had impaired HRQoL but obese patients (BMI>30) had greater impairment in health related quality of life. HRQoL impairment in obese patients was seen to be severe in all domains except emotional function domain. In underweight and overweight asthma patients HRQoL was more impaired in social functioning domain. HRQoL was seen to be less impaired in asthma patients aged 50 years. Positive correlation was seen in asthma severity and impaired HRQoL [15]. Similar findings were reported by another study conducted in India which highlighted that patients age and gender have an impact on the HRQoL [43].

### Overview of impact of asthma on health related quality of life in pakistan

Limited studies have been conducted on assessment of health related quality of life in asthmatic patients in Pakistan. Poor Health related quality of life in asthmatic patients was reported by a study conducted in Karachi highlighting lack of adherence to medication and exposure to risk factors as major factors aggravating asthma in such patients [44]. Another study conducted on children with asthma reported reluctance of people to share about illnesses like asthma in Pakistan and do not share their disease status [45]. A comparative study conducted on female patients with bronchial asthma and post-menopausal osteoporosis highlighted that patients with asthma had better health related quality of life than patients with osteoporosis [46].

### CONCLUSION

The review concluded that there is a need for an integrative understanding of barriers leading to poor HRQoL among asthmatics as core element to highlight gaps in current asthma management. Improvement in management of asthma by

introducing well -structured pharmaceutical care delivery in the healthcare facilities can contribute towards better patient knowledge and management and can ultimately improve the health-related quality of life of asthma patients. Furthermore research studies must be designed to find relationship between asthma and its impact on the psychological health of the patients. Extensive studies should be designed to explore more relevant tools for assessment of HRQoL in asthma. Different interventional studies must be conducted to identify factors effecting HRQoL in asthma along with effective strategies to combat the disease and improve HRQoL among asthmatic patients.

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