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RESEARCH ARTICLE

Impact of asthma control on health related quality of life in Islamabad, Pakistan: A correlational study

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ABSTRACT

Background: Asthma is a bronchial airways disease which is characterized by chronic inflammation and repetitive Asthma attacks. Quality of life is also affected by asthma control.

Objective: The objective is to determine the correlation of the asthma control with the health related quality of life in Asthma patients.

Methods: This descriptive cross-sectional study was conducted at N.I.H Islamabad and Federal General Hospital Islamabad. The asthmatic patients who had suffered from asthma for at least 6 months and were aged between 15-40 years, had received anti-asthmatic drugs and should have had residence at Islamabad/Rawalpindi were included. The subjects having cardiac, pulmonary or traumatic shortness of breath, any dermatological issues and those undergoing surgery were excluded from the study. The quality of life of asthmatic people was calculated using Urdu version of Mini Asthma Quality of Life Questionnaire (AQLQ). The study was spread over 6 months and 100 asthmatic patients, calculated through G-Power, were selected in the survey through convenience sampling. Spearman's correlation statistics on SPSS was used to find relation between health related quality of life and control on asthma

Results: Out of total patients, 31% asthma patients had uncontrolled asthma and 63% had partially control asthma symptoms and only 6% with controlled asthma. The correlational value of r = 0.886 shows a strong relationship between control on asthma and quality of life. $P<0.05$ so relationship is strong and significant. Quality of Life was poorer when the asthma was uncontrolled (2.12± 0.36) and it was better (5.46±0.30) when asthma was controlled.

Conclusion: The study concluded that the patient's with controlled asthma had better quality of life as compared to the patients with poor control on asthma symptoms. These asthmatic patients had poor quality of life in all domains of emotional, environmental and activity limitation.

Keywords: Asthma, Asthma control, Quality of life, Urdu Mini-AQLQ

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Introduction:

Asthma is characterized by recurrent episodes of bronchospasm and airflow obstruction.(1) Bronchial airways become hyper-responsive to triggers in order to start a series of reactions that include inflammation, bronchial muscles spasm and hyperactive mucous glands causing limitation of the airflow.(2)

Asthma is affecting more than one-third of the population globally with a continuously rise in its number. About 2.5 million people died because of the severe excerbations.(3) In America, asthma effects 25 million people.(4) Asthma prevalence in Pakistan is estimated to be more than 10 million in terms of sufferers and it is increasing by 5% annually.(5)

The factors responsible for increasing the risk of asthma include family history, genetics, pre natal influences, cigarette smoking, pollution, childhood infections, obesity, physical inactivity and stress.(6-9) In asthma, there are some repetitive episodes of chest tightness, coughing, wheezing and shortness of breath. Symptoms are worse at night and early morning.(10-12) Precipitating or triggering factors of asthma may include biological allergens, dust mites, tobacco smoke,

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paint/perfumes, seasonal variations, pollens, chemical fumes, cold weather, chemical fumes or gases, food allergens, physical exercise, and certain drugs.(13)

Asthmatic quality of life refers to the impact of asthma on life quality perceived by a patient himself.(14) It is individual's own satisfaction with his quality of life.(14) Health Related Quality of life (HRQOL) is defined as the overall quality of life (QOL) determined by its physical, psychological and socio-economic status. Asthma symptoms frequency, severity and expenses of asthma control are associated with poor QOL. Psychological symptoms are more in asthmatics than in non-asthmatics.(15) Health-related quality of life deterioration includes the symptoms severity, activity restrictions, restriction to avoid precipitant factors, medications cost, and asthma care, disruption of employment, career choices and effects on personal relationships. This decrease in quality of life in turn further deteriorates asthma control. It is expected that greater asthma attacks are associated with huge impact on person's health and has negative impact on patient QOL.(16)

Asthma has significant harmful effects on the overall quality of life of an individual. If asthma is un-controlled, these effects are even more marked. The quality of life is affected not only in the sense that the individual has difficulty in breathing but also in the sense that he avoids outings and even his work environment due to the presence of the allergens.(15) Physical activities of patient are severely disturbed during the attack. With efficient control on asthma by medications and avoidance of the precipitating factors, the undesirable effects of the asthma are prevented and the individual can live a very active life in society.(16)

Asthmatic people are usually less likely to participate in any physical activity due to the fear of their increase in symptoms, increased bronchospasm and reduced airflow. Due to this sedentary lifestyle, they are more prone to having a poor quality of life.(14) Evidence strongly suggests that aerobic exercises are very helpful in reducing the asthma symptoms with a decreased use of medication and less hospitalization. With the help of proper exercise plan, the quality of life of any degree of severity of asthma can be improved.(3, 12)

In a previous study, the asthmatic people with psychological problems were seen to have poorer health and activity limitation.(15) There is a significant association between the stress with asthma severity and quality of life in young asthmatic adults.(16) With efficient control on asthma by medications and avoidance of the precipitating factors, the undesirable effects of the asthma can be prevented and the individual can attain a very active life in society.

Previous research found out the association of the risk factors with the QOL. Asthmatic people with activity limitation are usually those having poor asthma control.(16) Study from Japan, evaluated association of stress with asthma severity and, QOL in young adults with asthma. Study reported no association between the perception of stress and quality of life in adult females.(15) R Ampon and colleagues found asthma impact on QOL in an Australian National Health Survey. The quality of life in asthmatic patients was found lower than diabetics but higher than arthritis.(17) Edward David Hanna found out asthma risk factors and effects on QOL by asthma in the New York industrial workers. They found poor quality of life with poor asthma control.(18)

Asthma is a very common and unfortunately non-curable disease affecting millions of people in our country and all over the world and its prevalence is increasing day by day. The asthma control affects the quality of life in all domains and it is being found out by previous researchers in America, Australia, Japan and European countries and in India, yet this relationship of asthma control on the quality of life needs to be further studied. The significance of the study is to highlight the harmful effects of asthma on quality of life on the asthmatic individual and on the society as well. By keeping asthma under-control, the effects on the quality of life can be minimized and the individual can spend an active and useful life for himself and society.

Methods:

A descriptive cross-sectional study was conducted to find out the impact of asthma on QOL of asthmatic individuals in Islamabad. Asthmatic patients who visited Allergy Center N.I.H Islamabad, Federal General Hospital Islamabad, within the study duration from October 2013-june 2014 were evaluated. The participants aged between 15-40 years, and diagnosed with asthma for 6 months, had received asthmatic treatment and should be living in Islamabad were included. They were requested to be included in the study. 100 asthma patients were selected by convenience sampling after informed written consent. All ethical guidelines according to declaration of Helsinki were followed while conducting the study,

patient confidentiality was maintained and permission from institute was obtained (No.F.1-34/2011-12/Allergy Centre).

Asthma control was measured through the asthma control test which mentions the control in control, uncontrolled and partial control categories. Asthma quality of life data was collected by Urdu version of 'mini AQLQ'. The questionnaire used was mini AQLQ that was developed by Professor Elizabeth Juniper in Canada. Urdu version of this questionnaire was used that was provided by Professor Elizabeth on demand by airmail. This is a shortened and efficient version of The Standardized Asthma Quality Of Life Questionnaire consisting of 32 questions. Mini AQLQ consisted of 15 questions. The questionnaire was divided into four domains Symptoms (5 questions), Emotional (3 questions), Environmental (3 questions) and Activity limitation (4 questions) domains. Responses of each of the question were divided into 7 point scale with 1 means severe impairment and 7 means no impairment and highest quality of life. Total score is calculated by taking the sum of all the responses of 15 questions and dividing it by 15. So the resultant mean is also between 1 and 7. If score is 1, it means severe impairment and 7 means that the individual has asthma but no impairment.(19)

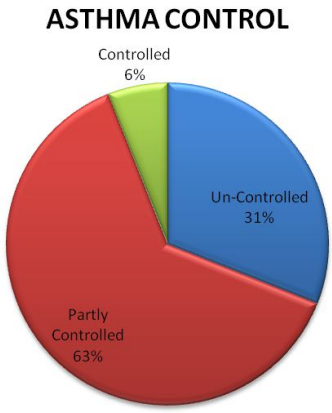
The test that has been used to show the association is Spearman's correlation test by putting the data on SPSS (17) software. The total score of mini AQLQ was represented as quality of life and its relation was found with the control on asthma by patient.

Results:

Among 100 patients with asthma, 79 were females, 78 were married, and 37 patients fall in the age group of 36-40 years. Among patients, 9 patients were diagnosed with asthma in less than a year, 26 patients had asthma for 1 to 5 years, 35 patients had asthma for 6 to 10 years, and 30 patients had asthma for 11 to 20 years.

Asthma un-controlled were 31, 63 patients had partially controlled asthma and only 6 patients had controlled their asthma with medication and avoidance of precipitating factors. (Figure 1)

Figure 1 Control on asthma



In current study, by using Spearman's correlation statistics, the relation was found between control on asthma and quality of life. The calculated value of correlation coefficient "r" was 0.886 which is near to +1 and showed a strong positive relationship between the score of mini AQLQ and control on asthma. P<0.001 which is less than 0.05 so relationship is strong and significant. It shows that quality of life improves with the control on asthma.

The association between the asthma control levels and different domains of mini AQLQ that shows quality of life is better with asthma control. (Table 1)

Table 1: Cross tabulation of asthma control with quality of life

Disease Severity According to GINA*	Global Score	Symptom Domain	Activity Domain	Emotional Domain	Environmental Domain
Uncontrolled (Mean ± SD)	2.12±0.36	2.01±0.54	2.56±0.52	1.41±0.36	2.45±0.86
Partly Controlled (Mean ± SD)	3.66±0.52	3.21±0.92	4.98±0.84	2.68±1.13	3.63±1.19
Controlled (Mean ± SD)	5.46±0.30	5.53±0.99	5.67±0.38	5.99±0.37	4.50±0.66
P-value	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**

*GINA-Global Initiative for Asthma

Discussion:

Asthma is a recurrent chronic disease that affects all aspect of an individual's life. This study mainly focuses on quality of life disturbance by asthma control. The study clarifies that the patients who have their asthma in the controlled range have better quality of life than those with partially controlled and uncontrolled level of asthma. Moreover, the emotional and symptom domains are more affected than environmental and activity domains of health related quality of life.

The asthma control in the current study mostly falls in the partially control and uncontrolled category. Few people were having the asthma in the controlled range. This asthma control in patients is much better in Sweden with 38% falling in the range of control asthma as compared to current study with only 6% falling in the range of control asthma.(20) Reasons for this are precipitating factors like smoke, pollens, dust cold and the working environment of the patients, pollens and smoke being the highest precipitating factors among all of these in the Islamabad region.(21)

The mean global score of mini AQLQ score in the Swedish population were lower overall in all domains of quality of life including symptoms, emotional function, activity limitation and environmental components in the patients with uncontrolled asthma as compared to the patients with controlled asthma. Although the other co-morbidities cannot be ruled out for the lower quality of life yet these values were statistically significant even after the adjustments of other co-variates like gender, age, BMI, smoking, depression, educational status and allergic rhinitis.(20) The current study also shows the same results with even more poor quality of life in the uncontrolled asthma cases particularly in the emotional and the symptom domain.(22) This means the quality of life with respect to control in our region is very poor as compared to other countries. Reasons for this are lack of awareness about the triggering factors of the disease like pollens and smoke, low socio-economic status and poor management of the disease.(21, 23) The quality of life in Spain and France was also poor with uncontrolled asthma.(24) Moreover, among the factors that affect the patient's quality of life it is the patient's education and the asthma control that are modifiable (24) so these are to be highlighted for the better management of asthma. The poor quality of life with uncontrolled asthma also increases the cost of asthma management.(22) The control on asthma can also reduce the management cost and improve health related quality of life.

Low literacy rate and lack of awareness in Pakistan causes troubles in answering questions as it was done through self-administered questionnaire. Non-response was not a major issue but there are conservative families that do not allow their ladies to participate in research sort of activities. This study was conducted on a small sample size due to which we cannot generalize it to all asthmatic population of country. Future study with a large sample and on a broad level would likely to give better results.

Conclusion:

The study concluded that most of the asthmatic population has partially control and uncontrolled asthma in Islamabad. The patients with controlled asthma had better quality of life as compared to the patients with poor control on asthma symptoms. These asthmatic patients had poor quality of life in all domains of emotional, environmental and activity limitation.

Disclaimer: Approval to conduct research was acquired from National Institute of Health, Islamabad, Pakistan (No:F.1-34/2011-12/Allergy Centre dated October 3rd, 2013).

Conflict of interest: Study is part of Post professional doctor of physical therapy degree thesis at Riphah international University Islamabad, Pakistan of Razzaq A.

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Authors Contribution:
Razzaq A: Conception of idea, Collection of data, Data Analysis, drafting of work
Sheraz S: Revising work critically for important intellectual content and final approval
Tariq M: Revising work critically for important intellectual content and final approval