

## Association of Asthma and Quality of life among Asthma Affectees

NOUREEN FAROOQ<sup>1</sup>, AYESHA SAJID<sup>2</sup>, HUMAIRA AFTAB<sup>3</sup>, SUMMAIYA MALIK ZAMAN<sup>4</sup>, AZAZ ULLAH SHAH<sup>5</sup>, FIRASHA AYUB<sup>6</sup>

<sup>1</sup>Assistant professor, Isra Institute of Rehabilitation Sciences, Isra University, Islamabad campus, Islamabad, Pakistan

<sup>2</sup>Internee, Rawalpindi Institute of Cardiology, Rawalpindi, Pakistan

<sup>3</sup>Lecturer, Isra Institute of Rehabilitation Sciences, Isra University, Islamabad campus, Islamabad, Pakistan

<sup>4</sup>Senior Lecturer, Isra Institute of Rehabilitation Sciences, Isra University, Islamabad campus, Islamabad, Pakistan

<sup>5</sup>Physiotherapist, Kulsum International Hospital, Islamabad, Pakistan

<sup>6</sup>Student, Department of Allied health sciences, University of Sargodha, Pakistan

Correspondence to: Noreen Farooq, Email: [noreen.15@gmail.com](mailto:noreen.15@gmail.com)

### ABSTRACT

Asthma is one of the most widespread respiratory ailments characterized by persistent inflammation, breathing difficulty, and airway hypersensitiveness. Critical and poorly controlled asthma influence the quality of life (QoL) of patients. The study aimed to evaluate asthma control and its association with the quality of life of the affectees.

**Methods:** A single cross-sectional survey was carried out at Lady Reading Hospital Peshawar from November 2019 to January 2020. 217 participants participated in a study. The survey was conducted by 217 using a convenience sampling technique. The asthma score scale and WHOQOL BREF-100 were used to collect data.

**Results:** Out of 217, 136(62.7%) males and 81(37.3%) females participated in study. Mean age of the participants was 42.98±19.26. Almost half of the responder's family reported positive asthma family history (101=46.5%). The mean Asthma Score (Asthma Control Test) was 15.86±4.02. The current study reported relatively poor quality of life in social Relations 48.21±14.58 and environment 42.85± 8.56 domains. Data regarding correlation showed a non-significant but positive association between asthma control and physical health, social relations, environment-related domains of WHOQOL but a non-significant negative association was found between asthma control score and psychological health.

**Practical Implication:** The findings showed a relatively poor quality of life in social and environmental domains. Moreover, a positive association was found between the asthma score and Physical Health, Social Relations, Environment related domains of WHOQOL

**Conclusions:** Majority of the participants had well-controlled asthma symptoms. The study findings regarding WHOQOL showed he relatively poor quality of life in social and environmental domains. Moreover, a positive association was found between the asthma score, physical health, social relations, environment-related domains of WHOQOL.

**Practical Implication:** Asthma affects quality of life among affectees. This study helps patients, physicians and cardiopulmonary physical therapist to understand the impact of asthma on quality of life of a asthmatic.

**Keywords:** Asthma, Health related quality of life, Physical health, psychological health, Quality of life.

### INTRODUCTION

Asthma is one of the common diseases, affecting about 334 million individuals globally <sup>(1)</sup>. According to the International Study of Asthma and Allergies in Children (ISAAC), the incidence of asthma is 14.1% between 13 – 14 years old children <sup>(2)</sup>. In Pakistan on the whole incidence of asthma is around 10.2% among 3 -17 years old. <sup>(3)</sup> With reference to Pakistani literature, the occurrence of physicians analyzed asthma is 15% among school-going children <sup>(4)</sup>. During adulthood stage, the prevalence of asthma is found to be more among males as common compared to females but later on, during adolescence, it influences both sexual categories nearly equal <sup>(5)</sup>. The Center for Disease Control (CDC) stated that the whole incidence of lifetime asthma is 10.5%. <sup>(6)</sup> Asthma is one of the most widespread respiratory ailments characterized by persistent inflammation, breathing difficulty, and airway hypersensitiveness. Wheezing, tussis, tightness of chest, and dyspnea are the most common symptoms <sup>(7)</sup>. In the asthma provocation both genetic disposition and environmental aspects such as contact to air pollution airway contamination, pollen allergens, and allergens psychological stress play a role <sup>(7, 8)</sup>. The malady is associated with poor QOL, substantial healthcare costs, and loss of work efficiency <sup>(9, 10)</sup>. It has a chief impact on the survival of patients and their relatives. Distinct from an individual with mild to moderate symptoms, those with the rigorous ailment are typically refractory to regular management, have deprived symptom cure influencing their societal and occupation life, and are at increased hazard of mortality <sup>(11, 12)</sup>. Moreover, it places enormous economic trouble in the health care organization, society, and persons. In addition to the financial impact, it can also direct to physical and social limitations, which, therefore, can negatively influence the QOL of asthmatic individuals <sup>(13)</sup>.

Critical and poorly controlled asthma influence the QoL of patients <sup>(14)</sup>. According to the World Health Organization (WHO), QOL is defined as an individual's awareness of his place in life, customs circumstance, and system of morals in which the person

survives and in relation to his objectives, potentials, principles and worries" <sup>(15)</sup>. It focuses on the impact that health status has on the QOL of individuals, going beyond direct measures of morbidity and mortality. Moreover, poorly-controlled severe asthma can raise an individual's risk of exacerbations, hospitalization, and death <sup>(16)</sup>. This may include restrictions on physical activity, sleep disorder, time off from school or work, poor life satisfaction, or emotional and psychological distress. More than approximately half of all asthma patients experience uncontrolled asthma despite the introduction of global and national disease management guidelines <sup>(17, 18)</sup>.

### METHODS

A descriptive cross-sectional study was carried out at lady reading hospital Peshawar from November 2019 to January 2020. A total of 217 asthma affectees participated in this study. Out of 217, 136(62.7%) were male and 81(37.3%) were female. Sample size was 217 and convenience sampling technique was used to recruit the target sample. The data was collected using the asthma score scale, and WHO QOL BREF-100, and a form with demographic details. The study was conducted after taking permission from the head of the institution and written consent from the participants. All data and results were analyzed using the SPSS software version 25. Mean, frequency, and percentages were calculated for demographic variables and responses to different questions. Pearson's correlation was computed to determine the correlation among WHOQOL domains and asthma control score.

### RESULTS

Out of 217, 136(62.7%) males and 81(37.3%) females participated in a study. The mean age and weight of the participants were 42.98(SD 19.26), 66.23(SD11.39) respectively. Most of the participants were housewives (81) and students (38)). The district-wise distribution of participants is as Peshawar 60 (27.6%), Charsadda 63(29%), Mardan 53(24.4%), Swat 27(12.4%), Kohat14 (6.5%). Regarding the Family Asthma History, almost half

(101=46.5%) of the responders were positive for asthma. Among the entire respondent's majority, 112(51.6%) were having asthma for more than 5 years. (Table no.1)

Table 1: Demographic data of the study participants (N=217)

Variables		N (%)
Age Groups	Under 18	20 (9.2)
	18-64	162 (74.7)
	Above 64	35(16.1)
Occupation	Business	22 (10.1)
	Driver	15 (6.9)
	Health workers	3 (1.4)
	Housewives	81 (37.3)
	Labor	13 (6.0)
	Shop keeper	30 (13.8)
	Security guard	7 (3.2)
	Student	38 (17.5)
	Teacher	8 (3.7)
	Family Asthma History	Positive

Asthma since	Negative	116 ( 53.5)
less than 1 year		34 (15.7)
1 year		18 (8.3)
2 year		12 (5.5)
3 years		21( 9.7)
4 years		14 (6.5)
5 years		6 (2.8)
more than 5 years		112 ( 51.6)

Most of the participants 94(43.3%) reported as well controlled in the past four weeks, while others reported as 21(9.7%) completely controlled, 54(24.9%) somewhat Controlled, 41(18.9%) were poorly controlled and 7(3.2%) were not controlled at all. The mean Asthma Score (Asthma Control Test) was 15.86(SD 4.02). Most of the respondents reported a score of less than 19 on the Asthma Score (Asthma Control Test).

Table 2: Depicts responses of participants to Asthma score scale questions (N=217)

Question	OPTIONS	n (%)	Question	OPTIONS	n (%)
1 In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school, or at home?	All of the time	4(1.8%)	During the past 4 weeks, how often have you had shortness of breath?	More than once a day	39(18%)
	Most of the time	12(15.5%)		Once a day	16(7.4%)
	Some of the time	55(25.3%)		3 to 6 times a week	75(134.6%)
	A little of the time	94(43.3%)		Once or twice a week	48(22.1%)
	None of the time	52(24%)		Not at all	39(18%)
During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, and shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?	4 or more nights a week	29 (13.4 %)	During the past 4 weeks, how often have you used your blue puffer or reliever medication (such as Ventolin, Asmol, Airomir, Apo-Salbutamol or Bricanyl)?	3 or more times per day	27(12.4%)
	2 to 3 nights a week	99(45.6 %)		1 or 2 times per day	84(38.7%)
	Once a week	30 (13.8 %)		2 or 3 times per week	46(21.2%)
	Less than once per week	29 (13.4 %)		Once a week or less	10(4.6%)
	Not at all	30 (13.8 %)		Not at all	50(23%)

Most of the participants 171(78%) reported that their asthma is not controlled (Asthma Score 19 or less), while a smaller number of participants that is 46(21.2%) reported a controlled (Asthma Score 20-25) asthma.

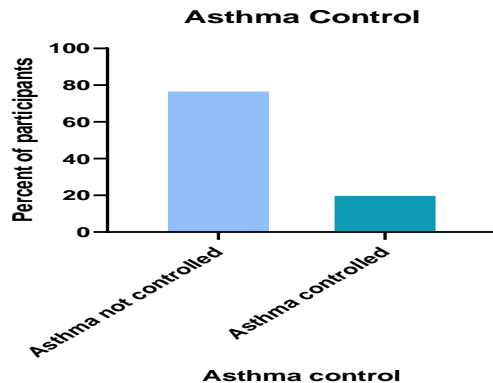


Table no.3 shows the mean score for all participants across four domains of WHO QOL BREF-100 Domains. On a scale of 0-100, the mean score for different domains of WHO BRE-100 was as: Physical Health 51.18(SD 12.45), Psychological 50.71(SD12.04), Social Relations 48.21(SD 14.58), and Environment (42.85 (SD 8.56). A Higher WHO BRE-100 score depicts a good quality of life while a lower score shows poor QOL. This study reported relatively poor QOL in Social and Environment domains.

Data regarding correlation showed a non-significant but positive association between asthma score (asthma control) and three different domains of health-related quality of life (Domain 1 Physical Health Correlation Coefficient =.051, Spearman's rank test= .455), Domain3 Social Relations Correlation Coefficient =.048, Spearman's rank test= .478 Domain4 Environment Correlation Coefficient =.052, Spearman's rank test=.449). but non-significant negative association was found between asthma score and Domain2 Psychological Correlation Coefficient = -.016, Spearman's rank test significance= .810. (Table: 4)

Table no.3 WHO QOL BREF-100 Domains (N=217)

Final score	Physical health Domain Mean(SD)	Psychological health Domain Mean (SD)	Social relationship Domain Mean (SD)	environmental-related Domain Mean (SD)
Transformed Score 4-20	12.16±1.99	12.09±1.94)	11.72±2.32	10.82±1.37
Transformed Score 0-100	51.18±12.45	50.71±12.04	48.21±14.58	42.85±8.56

Table 4: Correlations between asthma control and four domains of WHOQOL (n=217)

		D2Trasformed Score 0-100	D3Trasformed Score 0-100	D4Trasformed Score 0-100	D1Trasformed Score 0-100	Asthma control Score
Psychological health Transformed Score 0-100	Pearson Correlation	1	.584	.566	.6s99	-.012
	Sig. (2-tailed)		.000	.000	.000	.860
	N	217	217	217	217	217
Social relationship Transformed Score 0-100	Pearson Correlation	.584**	1	.368**	.562**	.049
	Sig. (2-tailed)	.000		.000	.000	.476
	N	217	217	217	217	217
environmental relatedTrasformed Score 0-100	Pearson Correlation	.566**	.368**	1	.652**	.037
	Sig. (2-tailed)	.000	.000		.000	.583
	N	217	217	217	217	217
Physical health Trasformed Score 0-100	Pearson Correlation	.699**	.562**	.652**	1	.051
	Sig. (2-tailed)	.000	.000	.000		.451
	N	217	217	217	217	217
Asthma control Score	Pearson Correlation	-.012	.049	.037	.051	1
	Sig. (2-tailed)	.860	.476	.583	.451	
	N	217	217	217	217	217

\*\* Correlation is significant at the 0.01 level (2-tailed).

## DISCUSSION

The present study was conducted to evaluate asthma control and its association with the quality of life of asthma sufferers. 136(62.7%) males and 81(37.3%) females participated in a study. The mean age of the participants was 42.98± 19.26 years. This is in contrast with the study conducted by Adachi M et al in 2019. (19) While the present study findings were consistent with the study carried out in 2019 by Zahid W et al (56.25% were males and 43.75% were females) (2).

Regarding the Family Asthma History, almost half (101=46.5%) of the responders were positive for asthma. The current study findings were supported by the study carried out by Zahid W et al in 2019 (2). While the present study results regarding family history of asthma were higher than the study conducted in 2019 by Adachi M et al (19).

With reference to the asthma control data, the current study shows that the majority of the participants 94(43.3%) had well controlled in the past four weeks, while others 21(9.7%) reported completely controlled, 54(24.9%) somewhat controlled, 41(18.9%) poorly controlled and 7(3.2%) not controlled at all. The study findings were supported by the study conducted by Adachi M et al in 2019 in which they reported that 42.6% patients had controlled; 31.7% had partly controlled; and 25.7% had uncontrolled asthma (19). However the study results were in contrast with the study conducted by Fontan FC in 2020 which showed that asthma was well-controlled in 24.4%, inadequately controlled in 69.2%, and poorly controlled in 6.5% correspondingly. (13)

A Higher WHO BRE-100 score depicts good QOL while a lower score shows poor QOL. This study reported relatively poor QOL in Social and Environment domains as compared to the physical and psychological health domains. Regarding QOL data, the present study findings are in contrast with the study conducted by Adachi M et al in which it was found that the impairments in HR-QoL were correlated with restrictions on daily activities ( $6.1 \pm 1.1$ ), asthma symptoms ( $6.0 \pm 1.0$ ), and emotional function ( $5.8 \pm 1.2$ ). (19) While the findings concerning QOL were consistent with the study conducted by Fontan FC in 2020 in which the majority of the participants reported that they had moderate to severe QOL impairment in "activity limitation"; "symptoms"; and "emotional function" domains (13).

Data regarding correlation shows a non-significant but positive association between asthma control and Physical Health, Social Relations, Environment related domains of HR-QOL but a non-significant negative association was found between asthma control score and psychological health. Our study findings were consistent with the study done by AL-Balushi et al in 2019 in which a positive association was found between asthma control and all domains of QOL. (20) The current findings were also similar to the previous studies conducted in Brazil in 2015 and 2019 where they found a positive association between moderate/severe asthma and worse QOL impairment (13, 21). Medical resources, diagnosis, and treatment must improve in developing countries. There are limited resources: access to medical and health resources; knowledge about disease; awareness, trainings, and awareness about health. Health literacy is mandatory for any disease and facilitates the patients access to resources, databases, and trainings about the disease. 22-28

## CONCLUSION

The present study found that the majority of the participants had well-controlled asthma symptoms. Our study findings showed a relatively poor quality of life in social and environmental domains. Moreover, a positive association was found between the asthma score and Physical Health, Social Relations, Environment related domains of WHOQOL.

**Conflict of Interest:** None

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