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ORIGINAL CONTRIBUTIONS

PSYCHOLOGICAL DISTRESS AND ASSOCIATED RISK FACTORS IN BRONCHIAL ASTHMA PATIENTS IN KUWAIT

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ABSTRACT

CONTEXT: Recent literature shows a high prevalence of psychological distress in bronchial asthma. **AIM:** To find the extent of psychological distress and associated risk factors in bronchial asthma patients in Kuwait. **DESIGN:** Case-control study. **MATERIALS AND METHODS:** In a study at Kuwait's allergy center, 102 patients aged 20-60 years with asthma (67%), asthma with allergic rhinitis (33%) completed a self-administered questionnaire (WHO-Five Well-being Index). A score below 13 was considered as psychological distress; and 13 and above, as normal. An equal number of controls, matched for age, gender, nationality, were also enrolled. **STATISTICAL ANALYSIS:** The data were analyzed using SPSS software, and proportions were tested with Chi-square or Fisher's test. Odds ratio (OR) with 95% confidence interval (CI) was calculated to quantify the risk factors. **RESULTS:** A significantly large proportion (69%) of patients were found to be psychologically distressed, compared to 24% among controls ($P < 0.001$, OR = 7.5; 95% CI: 4-14). As many as 83.3% of cases, in the younger (20-30 years) age group, were distressed ($P < 0.044$), compared to other age groups. A declining trend in proportion of distressed cases with increasing age was observed ($P < 0.013$). A higher proportion of females (73.8%) and Kuwaitis (71.6%) with distress were observed, both among cases and controls. **CONCLUSIONS:** We found a high rate of poor well-being and psychological distress in patients suffering from asthma. Young patients and those with relatively short duration of illness, as well as asthmatic females, are more vulnerable to distress and need further psychological evaluation.

Key words: Asthma, psychological distress, risk factors

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INTRODUCTION

There have been considerable studies on the relationship between asthma and psychological disturbance. Recent review of literature describes an increased prevalence of psychological comorbidity in adults with asthma. Previous research suggests that anxiety and depression are more common in patients with moderate-to-severe asthma than in the general population.^[1] Persons with asthma who suffer from symptoms such as dyspnea and nocturnal awakening are at increased risk for psychological distress and depression. Several psychological and emotional factors have been noted to be associated with poor asthma control, near-fatal asthma attacks and asthma mortality.^[1] Feldman *et al.* have found a very high rate (65%) of psychiatric disorders like mood changes and anxiety in a high-risk inner-city asthmatic patients. They suggested psychiatric disorders should be taken into account when treating asthma.^[2]

Psychological distress, leading to depression, might be a risk factor for asthma-related morbidity and mortality.^[3] Frequent hospital admissions with severe asthma seemed to be more in people with anxiety. Asthma and depression are thought to interact and worsen both conditions, particularly in patients with severe asthma.^[4] Identification and treatment of psychological disturbance in these patients help to reduce asthma-related morbidity and mortality. Therefore, it is essential to find out the risk factors responsible for, or contributing to, psychological distress. Early detection and intervention of these risk factors may help to reduce asthma morbidity and mortality.

Despite numerous studies on asthma and psychological disturbance, no such reports are available from Kuwait. We sought to investigate the extent of psychological distress and the related risk factors in asthma patients in Kuwait. There is a link between allergic rhinitis and asthma, and often both conditions coexist. So patients with asthma, asthma with allergic rhinitis were selected in this study.

The study was conducted to find the extent of psychological distress and associated risk factors in bronchial asthma patients in Kuwait.

MATERIALS AND METHODS

Patients with bronchial asthma, asthma with allergic rhinitis attending the asthma outpatient clinic at Kuwait's Allergy and Respiratory Disease Center during the period from January 2004 to December 2005 were included in the study. Patients with morbid conditions like diabetes, hypertension, ischemic heart disease, obesity and smokers were excluded.

All patients were with moderate-to-severe asthma, stable on inhaled steroids, with daily doses ranging from 400 to 1,000 µg of beclomethasone or fluticasone equivalent. Those with allergic rhinitis were stable on 10 mg of cetirizine and 50-100 µg of intranasal beclomethasone.

A total of 102 such patients were asked to complete a five-item WHO well-being index questionnaire. An equal number (102) of controls, without any bronchial asthma or asthma with allergic rhinitis, matched for age, gender and nationality, were also selected to complete the same questionnaire.

The World Health Organization five-item well-being index (WHO-5) is a short, positively worded instrument designed to assess the level of positive well-being. The WHO-5 well-being index performs the best screening for depression in primary care.^[5] The reliability and validity of this instrument have been proved in the screening of patients for depression in all age groups.^[5-8] Compared to those without depression, medical outpatients with depressive symptoms or disorders experienced decrements in the quality of life.^[9]

The five items in the questionnaire reflected presence and absence of positive well-being. Lack of positive well-being was an indication for testing for depression.^[10]

Scoring for assessment of distress^[10]

From the questionnaire, the raw scoring was calculated by totaling the figures of five answers. The raw score ranged from 0 to 25. The responses of patients and controls on a scale of 0-5 for all the five items were recorded and then added. A patient's score of 'below 13' indicated poor well-being, and the patient required testing for depression under International Classification of Diseases (ICD-10), while a score of '13 and above' represented a good-to-best possible quality of life. The cut off point of 13 has been used with good reliability and validity in other studies.^[10,11]

Statistical analysis

The data for cases and controls was analyzed for demographic and clinical variables and compared to find any association or significant differences in proportions using chi-square or Fisher's test. Odds ratio (OR) with 95%

confidence interval (CI) was also calculated to identify the associated risk factors.

A probability level $P < 0.05$ was used as the criteria for statistical significance. Statistical package for social sciences (SPSS, version 13, 2005; SPSS Inc., Chicago, IL, USA) was used for data management and analysis.

RESULTS

The demographic characteristics and clinical factors in 102 patients with asthma, asthma with allergic rhinitis (cases) and their matched controls are presented in Table 1. Male-to-female ratio, both in cases and controls, was 1.4:1. The maximum (57.8%) cases and controls were in the age group 31-50 years. Almost two-thirds of our patients and controls were Kuwaitis, and a majority (86.3%) among them was married. As regards working status, no significant differences were observed in the two

Table 1: Demographic and clinical characteristics in asthma patients and controls (n = 102)

Demographic and clinical characteristics	Cases No. (%)	Controls No. (%)	P-value
Gender			
Female	42 (41.2)	43 (42.2)	0.887
Male	60 (58.8)	59 (57.8)	
Age group (years)			
20-30	30 (29.4)	30 (29.4)	1.000
31-50	59 (57.8)	59 (57.8)	
51-60	13 (12.8)	13 (12.8)	
Nationality group			
Kuwaiti	67 (65.7)	66 (64.7)	0.883
Non-Kuwaiti	35 (34.3)	36 (35.3)	
Marital status			
Single	14 (13.7)	14 (13.7)	1.000
Married	88 (86.3)	88 (86.3)	
Working status			
Not working	21 (20.6)	24 (23.5)	0.626
Clerical	45 (44.1)	47 (46.1)	
Professional	36 (35.3)	30 (29.4)	
Distress level			
Distressed	70 (68.6)	23 (22.5)	0.001*
Normal	32 (31.4)	79 (77.5)	

*OR (95% CI) = 7.51 (4.02-14.04)

groups. A significantly higher proportion of cases, 70 (68.6%), were found to be psychologically distressed, compared to 23 (22.5%) in controls ($P < 0.001$, OR = 7.5; 95% CI: 4.02-14.04).

Percent distress, in cases and controls, with respect to demographic factors and other health conditions is presented in Table 2. It was noticed that females, both among cases and controls, were more distressed than males, though statistically significant only among controls ($P < 0.016$). Distress among Kuwaitis was slightly higher compared to that among non-Kuwaitis, which include all foreign nationals residing in Kuwait for employment. Significantly higher proportion (83.3%) of cases, in the younger age group (20-30 years), were distressed ($P < 0.044$) compared to those in the other age groups. A declining

trend in proportion of distressed cases with increasing age was observed (Chi-square for trend; $P < 0.013$). Marital status did not show much difference in the proportion of distressed, either in cases or controls. As regards working status, nonworking cases were more distressed (71.4%) compared to working cases (67.9%), being 77.8% among clerical workers and 55.6% among professionals.

The proportion of distress in patients having asthma and those with asthma and allergic rhinitis was almost same (69.1% vs. 67.6%). Though not statistically significant, an inverse relationship between disease duration and proportion of distressed cases was observed; shorter the disease duration, higher the proportion of cases (<5 years vs. >5 years; 71.4% vs. 66.0%),

Table 2: Percent distress among asthma cases and controls by demographic factors and other health conditions

Factor	Cases (n = 102)		P-value or (95% CI)	Controls (n = 102)		P-value or (95% CI)
	% Distress	No. %		% Distress	No. %	
Gender						
Female	31/42	73.8	0.391	15/43	34.9	0.016
Male	39/60	65.0		8/59	13.6	
Nationality group						
Kuwaiti	48/67	71.6	0.378	17/66	25.8	0.333
Non-Kuwaiti	22/35	62.9		6/36	16.7	
Age group						
20-30	25/30	83.3	0.044	7/30	23.3	0.989
31-50	39/59	66.1	0.013*	13/59	22.0	0.950*
51-60	6/13	46.2		3/13	23.1	
Marital status						
Single	10/14	71.4	0.808	3/14	21.4	0.914
Married	60/88	68.2	1.17 (0.34-4.04)	20/88	22.7	0.93 (0.24-3.65)
Working status						
Not working	15/21	71.4	0.096	5/25	20.0	0.507
Clerical	35/45	77.8	0.123*	9/47	19.2	0.863*
Professional	20/36	55.6		9/30	20.8	
Diagnosis†						
BA	47/68	69.1	0.892			
AR + BA	23/34	67.6				
Duration of Illness (years)						
1-5	35/49	71.4	0.749			
6-10	19/30	63.3				
>10	16/23	69.6				

†AR - Allergic rhinitis; BA - Bronchial asthma; *Chi-square for trend

DISCUSSION

The literature reveals many reports on the psychological status of patients with asthma. Previous studies showed either younger^[12,13] or elderly^[7] patients with asthma suffered from psychological depression. Adams *et al.*^[14] documented that psychological distress and decreased feelings are common in asthmatics. In another study by Manucoso, nearly 50% of asthma patients were found to suffer from clinically significant depressive symptoms,^[15] and it was attributed to the stress of having a chronic illness.^[16] In clinical samples of children and adolescents, asthma has been associated with presence of an anxiety disorder^[17] and depressive symptoms among youth with moderate-to-severe persistent asthma.^[18]

However, Jansen *et al.*^[19] were unable to find significant evidence that asthmatics had more anxiety and depression than non-asthmatics.

In our study, we found a high proportion of psychological distress in patients with asthma than in controls (68.6% vs. 22.5%) ($P < 0.001$), which supports the findings of previous studies. It is interesting to find that women are more distressed than men, both in cases and controls. The distress in women becomes more when they are affected by asthma. This may be due to the stress related to family and children. Also, it is known that among many women in their reproductive age, asthma worsens during their menstrual periods (perimenstrual exacerbation of asthma). Such perimenstrual exacerbations add further distress in women. Tovt-Korshynska *et al.*^[20] also showed that psychological distress in asthma is more common in women compared to men. Our present study supports and

confirms this.

The distress was significantly higher in the younger age group (20-30 years). This is consistent with previous studies by Goodwin *et al.*^[21] They proposed a linkage between asthma and depressive and anxiety symptoms. There are likely to be some common factors associated with both asthma and anxiety disorders. This distress may be due to their poor work performance, poor physical fitness or constantly thinking of being a victim of a chronic disease. Lack of sound sleep at night, sedative effects of antihistamines make the quality of life poor and result in poor performance at work, which may lead to anxiety and depression.

A significant observation in this study was that in asthmatics, the distress gradually decreased as the age advanced. This is probably due to a better understanding and acceptance of the disease and better adjustment of their life to their illness.

The low proportion of psychological distress in the non-Kuwaiti population may be due to the fact that they are happy with the living conditions in Kuwait than with those in their native country. There are no studies as evidence to this, and the inference is only on the basis of personal impression during patient care and some outreach group discussions.

Asthmatics with allergic rhinitis are bothered by stuffy and/or blocked nose, headache, fatigue, rhinorrhea and sneezing. They have to carry tissues, always needing to blow their nose, which makes them feel frustrated and irritable.^[22-24] These symptoms can produce severe emotional distress, leading to depression.

The present study showed a high proportion of asthmatics in clerical staff were distressed, possibly because of poor work performance, poor satisfaction, and frequent absence at work. For asthma-related morbidity and mortality, psychological factors have been implicated as potentially contributing to asthma severity.^[25,26] In asthma, symptomatic management is the priority, thereby neglecting the psychological disturbance of a recurrent chronic illness. Recognition and treatment of psychological disturbances in them could significantly reduce asthma-related morbidity.^[27] Depression is associated with decreased performance in the complex task of problem solving^[28] and a decrease in memory and attention span. Previous research supports the recommendation that health-related quality of life should be measured in addition to conventional clinical parameters in patients with asthma.^[29]

CONCLUSION

Our study showed that bronchial asthma patients were psychologically more distressed as compared to controls. The patients in the younger age group and women were in risk group and hence needed to be screened for possible depression and treated accordingly to achieve their physical, emotional well-being and better health care. Our study warrants further research on this aspect in Kuwait through a longitudinal study.

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