

PSYCHOSOCIAL VARIABLES AND THE ROLE OF FAMILY SUPPORT IN PATIENTS WITH BRONCHIAL ASTHMA

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Summary

Background: Studies worldwide report on depression, anxiety and alexithymic characteristics in adults with bronchial asthma, but reports on sense of coherence and family support are lacking.

Purpose: To investigate the psychosocial characteristics of Greek patients with bronchial asthma, all existing correlations and the role of their sense of family support.

Method: Our sample included 40 patients with bronchial asthma (N=40). Patients replied to the questionnaires on depression (Beck Depression Inventory), anxiety (Spielberger State-Trait Anxiety Scale), alexithymia (Toronto Alexithymia Scale), family support (Family Support Scale) and sense of coherence (Sense of Coherence Scale). Individual, demographic and variables from their medical history were recorded.

Results: Patients with asthma scored significantly higher on depression, anxiety and alexithymia compared to the general population. 68,4% of our patients exhibited depressive symptomatology and 28,9% presented with anxiety symptoms, whereas alexithymic characteristics were identified in 28,9% of our patients. Powerful positive correlations were evidenced among depression, anxiety and alexithymia, while sense of coherence was positively correlated with family support. Negative correlations appeared between the two groups of psychological variables.

Conclusions: Our study confirms the presence of high rates of depressive and anxiety symptoms, along with increased prevalence of alexithymic characteristics, in patients with bronchial asthma. On the other hand it highlights the existence of protective factors such as sense of coherence and family support.

Keywords: bronchial asthma, psychosocial variables, family support

BACKGROUND

Although the concepts underlying asthma pathophysiology have evolved dramatically in the past years, the undergoing evaluation concerning its psychological components did not follow the same trends [1]. The reciprocal interaction between asthma and its psychological components has been recognized for centuries [2]. Asthma has long been considered

to be primarily a psychosomatic disease and during the 1930s–1950s, asthma was known as one of the “holy seven” psychosomatic illnesses [3]. Until then, its cause was considered to be psychological [4], with treatment often based on psychoanalysis and other ‘talking cures’ [5]. As these psychoanalysts interpreted the asthmatic wheeze as the suppressed cry of the child for its mother, they considered the treatment of depression to be especially important for individuals with asthma [6]. During the early ‘70s, our understanding of the etiology and pathophysiology of asthma significantly improved [7,8], leading to reduced emphasis on psychological parameters. Improper use of beta-agonists without corticosteroids and increased morbidity and mortality in many countries [9], led back to a resurgence of research on non-biological factors in asthma, involving economic and social indicators [7].

Recent studies indicate that depression is one of the main psychological problems in allergic patients [10], although it is often regarded as a somewhat “natural response” to the diagnosis of a significant disease, such as bronchial asthma [11-13]. However, while grief and mild depression may be regarded as normal responses to the diagnosis of a chronic disease, the most severe, chronic depression can lead to serious consequences for patients with asthma [12]. Prevalence of depression or depressive symptoms in asthma patients indicate that from 1% to 45% of people with asthma also suffer from depression or depressive symptoms comorbidity [14,15,16-21]. Unfortunately, such a wide variation in reported prevalence rates, makes it difficult to draw conclusions, but most researchers argue for an increased prevalence of depression in patients with asthma. The most commonly used depression questionnaire is the Beck Depression Inventory (BDI) [22].

According to literature stress is a well- studied contributing factor in chronic diseases that influences their evolution. Authors indicate that chronic stress contributes to cardiovascular illnesses, such as coronary heart disease [23-25] and COPD [26-28]. The role of anxiety has been extensively studied in asthma patients and medical literature reports a high comorbidity of anxiety disorders [29-31] especially panic disorder [32] in patients with bronchial asthma, but relative data concerning the prevalence of anxiety disorders in asthma patients from Greek literature are lacking. For anxiety the most frequently used scale is the Spielberger State -Trait Anxiety Inventory (SSTAI) [33].

Alexithymia, which is defined as the inability to identify and describe emotions in the self, is considered a key contributing factor in the development of bronchial asthma [34,35], however its coexistence and relationship with anxiety and depression have not been investigated in asthma patients. The

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most commonly used scale to evaluate alexithymia is Toronto Alexithymia Scale (TAS-20) [34]. Another factor that is absent from the literature of bronchial asthma is the Sense of Coherence [36] in patients, which refers to the ability of individuals to make sense of and manage events. Lack of research around this factor is of primary importance since Sense of Coherence is considered a relatively stable characteristic of the individual [36,37] but also because several studies have found associations with depression [38] stress and social support [39]. The role of sense of coherence in active management and emotional state in patients with type-2 diabetes has well been established [40,41]. The concept of Sense of Coherence is most frequently measured with the Sense of Coherence scale (SOC) [36], which is a widely used instrument developed by Antonovsky.

Another factor that has not at all been studied in adult patients with bronchial asthma, is their subjective sense of family support provided by their environment, a factor with a significant role in the treatment outcome in patients with Diabetes Mellitus [42,43]. The Family Support Scale has been successfully used to record the sense of family support in Greek population studies [42,43].

Themes throughout literature often deal with the influence from one or two psychological factors on patients with bronchial asthma, thereby offering a limited aspect of the overview of psychosocial characteristics and the existing relationships among them. Additionally, while the role of family support is important in other chronic diseases, especially in Greek patients, it has not been studied at all in adults with bronchial asthma.

Objective

The aim of this study is to investigate the psychosocial characteristics of Greek patients with bronchial asthma and understand their relationship with their subjective sense of family support.

Material - Method

The study was conducted in Sotiria General Hospital of Chest Diseases. The subjects replied to the questionnaires which were administered in the Outpatient Department. The sample included patients with bronchial asthma without any other chronic disease comorbidity. The age of patients ranged from 18 to 70 years. The sample included 40 patients who were physically competent to answer the administered questionnaires.

A specific protocol was developed to record their demographic characteristics, illness duration in years, treatment with cortisone and disease's severity.

Psychosocial Variables and Measurement Scales

Patients replied to self-report questionnaires, which have been standardized and used in the Greek population previously.

Depression was assessed with the Beck Depression Inventory (BDI), which is widely used, and has been standard-

ized [44] and used in the Greek population previously [45-46]. The BDI, one of the most popular depression rating scales, includes 21 items graded from 0 to 3. The inner coherence reliability is high and the re-test reliability ranges from 0.48 to 0.86 for clinical groups and 0.60 to 0.90 for non-clinical population. Its validity in relation to an external criterion for depression, such as clinical diagnosis, is considered to be satisfactory.

Anxiety was assessed with the Spielberger state-trait anxiety scale (SSTAI) [33], one of the well-known and broadly used anxiety rating scales. The scale consists of 40 items, each one graded from 1 to 4. The scale differentiates anxiety to (a) anxiety caused by a specific condition (state subscale), and (b) anxiety as a more permanent characteristic of the personality (trait subscale). This second (trait) subscale was used in our study protocol. The scale is considered as having a high inner coherence reliability and validity compared to clinical diagnosis. The scale has been standardized [47] and used in the Greek population previously [45,46].

Alexithymia was assessed with the 20-item self-answered Toronto Alexithymia Scale (TAS-20) [48]. Each item is rated from 1 to 5. The questionnaire's translation into modern Greek had good reliability ($\alpha = 0.80$). Scores range from 20 to 100 and scores > 60 indicate characteristics of alexithymia. The TAS-20 consists of three factor scales: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF) and Externally Oriented Thinking (EOT). The scale includes five negatively keyed items (items 4, 5, 10, 18 and 19). The scale has been standardized [49] and used in the Greek population previously [50].

To measure perception of family support we used, Jukkunen's 13-item questionnaire. All 13 items of the scale (e.g. item 1: "My family supports me in all my efforts" and item 5: "I am always the one to blame when our home is a mess") are rated on a five-point scale; scores range from 13 to 65 and scores > 37 indicate an increased sense of family support. The questionnaire's adaptation in modern Greek [51] presented good reliability ($\alpha = 0.80$). Individuals living by themselves did not answer the questionnaire.

To measure sense of coherence we used Sense of Coherence questionnaire (SOC), developed by Antonovsky in order to evaluate how people manage stressful situations and stay well [36]. We used SOC-13 short version, graded from 0 to 7, which has been standardized in the Greek population previously [52]. Scores range from 13 to 91. The SOC scale seems to be a reliable and valid instrument (Cronbach's $\alpha 0.83$).

Statistical analysis

Statistical analysis was performed using SPSS 19. Inductive statistics included correlations (Pearson Correlation), t-test (one sample t-test and Independent Samples Test), ANOVA and Chi-Square Test (χ^2). Level of significance was set to $p=0,05$ (2-tailed).

Results

The study included 40 patients (N=40) with bronchial asthma (14 men and 26 women). 15,8% of our patients

(25% of men and 11,53% of women) were unmarried, 63,2% (58,33% of men and 65,38% of women) were married, 10,5% (8,33% of men and 11,53% of women) were divorced and the rest 10,5% (8,33% of men and 11,53% of women) were widowed.

31,6% of our patients suffered from mild bronchial asthma, 36,8% from moderate and 31,6% from severe.

60,5% of our patients grew up with their parents, whereas the rest 39,5% grew up without them.

For 44,7% of our patients their treatment included cortisone, which was not the case for the rest of them (55,3%).

Mean age of our sample, mean years of education and the mean time from diagnosis (illness duration in years), along with the mean scores in the administered measurement scales are presented in Table 1.

In BDI scale 68,4% of our patients (69,23% of women and 66,6% of men) presented with depressive symptomatology (BDI>9). In STAI 28,9% of our patients (34,6% of women and only 16,6% of men, x^2 , $p < ,05$) presented with anxiety symptomatology. 28,9% of our patients (38,46% of women and only 8,33% of men, x^2 , $p < ,05$) presented with characteristics of alexithymia (TAS-20>60). In Family Support questionnaire 12,12% of our patients (13% of women and 10% of men) scored below 38,5 and in Sense of Coherence scale 23,68% of our patients (only women included) scored below 50.

The psychological variables of depression, anxiety and alexithymia in patients of our sample were significantly different from the corresponding of the general population (one-sample t-test, in BDI with test value 5,86 $p < ,01$, in STAI with test value 36,9 $p < ,01$ and in TAS-20 with test value 49,5, $p < ,05$).

On the other hand, Sense of Coherence and Family Support were not significantly different from the corresponding of the general population (one-sample t-test in Sense of Coherence scale with test value 59,85, $p = ,81$ and in Family Support questionnaire with test value 48, $p = ,53$).

An important finding of our study is that patients who grew up without their parents feel that less family support is made available to them, as indicated by their scores to the Family Support questionnaire (independent samples test, $p = ,024$), a fact that does not affect other psychological characteristics.

No differences were evidenced among psychological variables in patients of our sample as to their illness duration (Pearson $p > 0.05$ - table 2) or their treatment with or without cortisone (T- test, $p > 0.05$).

Results indicate that these psychological variables under investigation seem to form two distinct sub-groups, with identifiable correlations among them. Depression, anxiety and alexithymia constitute the one subgroup, negatively affecting the outcome of the disease and sense of coherence and family support are included in the other subgroup offering a chance to improve the prognosis. All identifiable correlations are significant (Pearson, $p < ,05$) and some are more (Pearson, $p < ,01$), except from the correlation between alexithymia and family support (Pearson, $p = ,086$ - table 2).

Discussion

Our study confirms [53] the presence of high levels of anxiety (28.9%) and depressive (68.4%) symptoms and the increased prevalence of alexithymia (28.9%) in bronchial asthma patients of our sample as compared to the general population.

Concerning pathophysiology of anxiety symptoms in bronchial asthma patients, both hyperventilation [54] resulting in cerebral hypoxia and hypersensitivity to CO₂ levels are implicated as possible triggers of various types of anxiety disorders [55]. Clinical manifestations are usually a constellation of parallel and simultaneous alterations in respiratory and central nervous system [56].

The increased prevalence of anxiety and depressive symptomatology and the presence of characteristics of alexithymia in asthmatic patients, combined with the significant positive correlations between these psychological variables, require a careful interpretive approach.

Studies in clinical and healthy population samples have shown association between depressive symptomatology and characteristics of alexithymia, while it is known that depressed patients tend to exhibit more characteristics of alexithymia [57,58]. Additionally, the presence of characteristics of alexithymia has been correlated with high anxiety levels [59].

This raises questions as to the temporal sequence of appearance of symptoms in our patients. But regardless of the time sequence and any causal relation that may exist, all correlations that emerge must be considered when attempting therapeutic interventions, particularly in patients with characteristics of alexithymia [60].

These patients fail to recognize, express and regulate their psychological difficulties and they often somatize, which can distract the clinician from the early diagnosis of comorbid anxiety and / or depressive symptoms [61]. All such parameters must be taken into account when implementing specialized psychotherapeutic interventions.

On the other hand, protective factors emerge such as sense of coherence and family support that counteract variables in the opposite group (depression, anxiety and characteristics of alexithymia), establishing resiliency of our patients and helping them to address the difficulties of their disease (coping) [62]. These factors are positively correlated with each other and negatively correlated with factors from the aforementioned opposite group.

Sense of coherence includes all positive personality traits and idiosyncratic elements that promote adaptability of the patient. Individuals with a high sense of coherence are more capable of perceiving stressors with sense and structure and are more efficacious about their ability to deal with them [63]. Studies indicate that sense of coherence accounts significantly for the explained variance of adaptational outcome in chronic diseases and according to literature [64] sense of coherence serves as a moderator of the effects of stressful life events on health.

References emphasize the protective role of the family in negative life events in patients with bronchial asthma, thereby indicating the importance of family support. Functional families enhance treatment adherence, promote recovery and

reduce morbidity and dysfunctional families adversely affect the course of the disease weakening coping resources available to address the difficulties and reducing the chances of finding solutions [65].

The family of a patient with bronchial asthma has a significant impact on the course and outcome of the disease. Early parental environment shapes beliefs and behaviors and ultimately affects the way patients cope with their disease as adults [66].

Concerning adult patients reports indicate that marriage, presence of children and socio-economic status, all have different effects on the course and outcome of the disease [65]. At the same time family system is a dynamic system that undergoes changes over time, which means that protective factors may be converted to negative and vice versa, implying that all information related to the structure, activities, circumstances

and life events concerning the patient's family, must be examined before addressing therapeutic interventions.

Conclusion

The present study demonstrates the high prevalence of depressive and anxiety symptoms and alexithymic characteristics in patients with bronchial asthma, which complicates the existing physical disease. However, our study highlights the presence of protective psychological factors such as sense of family support experienced by the patient, and sense of coherence, as a stable characteristic of the individual. These findings can and should be taken into account both in the level of biological treatments of bronchial asthma and when implementing specific psychotherapeutic interventions for these patients.

	N	MAX	MIN	MEAN	ST. DEV.
AGE	40	19	70	43,79	13,140
YEARS OF EDUCATION	40	6	16	10,74	3,554
ILLNESS DURATION	40	0	25	9,24	6,015
DEPRESSION (BDI)	40	2,00	32,00	14,1579	7,53560
ANXIETY (STAI)	40	25,00	60,00	42,4737	9,91242
ALEXITHYMIA (TAS-20)	40	29,00	79,00	53,9474	12,86720
SENSE OF COHERENCE (SOC)	40	13,00	84,00	60,5000	16,67617
FAMILY SUPPORT (FS)	40	28,00	65,00	49,6667	10,60562
Valid N (listwise)	40				

		AGE	YEARS OF EDUCATION	ILLNESS DURATION	BDI	STAI	SOC	TAS-20
YEARS OF EDUCATION	Pearson's r	-,579**						
	P	,000						
ILLNESS DURATION	Pearson's r	,213	-,281					
	P	,200	,087					
DEPRESSION (BDI)	Pearson's r	,119	-,081	,033				
	P	,477	,628	,846				
ANXIETY (STAI)	Pearson's r	-,147	,014	,030	,659**			
	P	,378	,932	,857	,000			
SENSE OF COHERENCE (SOC)	Pearson's r	,338*	-,186	-,033	-,549**	-,560**		
	P	,038	,263	,845	,000	,000		
ALEXITHYMIA (TAS-20)	Pearson's r	-,021	,189	,021	,452**	,495**	-,400*	
	P	,899	,256	,902	,004	,002	,013	
FAMILY SUPPORT (FS)	Pearson's r	,164	-,004	-,223	-,455**	-,428*	,507**	-,304
	P	,362	,982	,213	,008	,013	,003	,086
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0,05 level (2-tailed).								

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