



NEGATIVE EMOTIONAL STATE IN ALLERGIC RHINITIS MEASURED BY USE OF DASS

Dr Munish Saroch	Professor, Department of ENT, Dr Rajender Prasad Government Medical College, Tanda, Kangra, Himachal Pradesh, India-176001.
Dr Amit Saini*	Medical Officer, Department of ENT, Dr Radhakrishnan Government Medical College, Hamirpur, Himachal Pradesh, India-177001. *Corresponding Author
Dr Harjitpal Singh	Assistant Professor, Department of ENT, Dr Radhakrishnan Government Medical College, Hamirpur, Himachal Pradesh, India-177001.

ABSTRACT **Objective:** To measure the negative emotional state in allergic rhinitis patients using DASS scale.
Material & Methods: Two hundred patients suffering from allergic rhinitis who visited Out Patient department of Otorhinolaryngology were presented 42 item DASS questionnaire and their negative emotional state was measured.
Results: On applying DASS total of 49.6% of the patients of allergic rhinitis were having symptoms of severe and extremely severe depression, 42.7% were suffering from severe and extremely severe anxiety and 6.2% of patients were suffering from severe and extremely severe stress.
Conclusion: Allergic Rhinitis is strongly associated with depression and anxiety. DASS is a simple tool which can be easily used in outpatient setup.

KEYWORDS : Allergic Rhinitis, Depression Anxiety and Stress Scale, Depression , Anxiety, Stress

INTRODUCTION

Allergic Rhinitis (AR) is a very common problem seen in routine Otolaryngology clinics. The prevalence of AR differs in different parts of the world and stands at 20% to 30% in Indian population which amounts to substantial number of patients¹. Allergic Rhinitis is clinically associated with nasal itching, sneezing, watery and mucous nasal discharge and nasal obstruction. Allergic rhinitis may be classified as seasonal (i.e., symptoms occur during a specific time of the year) or perennial (i.e., symptoms occur year round). Regardless of the nature of the allergen, the symptoms of allergic rhinitis are notably discomfoting². In addition to nasal discomfort, there appears to be enough evidence for a relationship between allergic rhinitis and negative emotional symptoms as depression, anxiety and stress.³ The DASS is a 42-item questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress⁴. In the present study we aim to quantify the symptoms of negative emotional state in patients of AR using the DASS.

Depression Anxiety and Stress Scale (DASS)

The **Depression Anxiety and Stress Scale⁴** (Lovibond & Lovibond, 1995) is a self reported questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. Each of the three scales contains 14 items. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale (items) is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Respondents are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week which is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to considerable degree, or a good part of the time
- 3 Applied to me to very much, or most of the time

Scoring:

Scores of Depression, Anxiety and Stress are calculated by summing the scores for the relevant items.

The depression scale items are 3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38, 42.

The anxiety scale items are 2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40, 41.

The stress scale items are 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, 39.

After summing the scores for depression, anxiety and stress each one is

classified into normal, mild, moderate, severe and extremely severe as given in table 1.⁴

Table 1. Classification Of Depression, Anxiety And Stress As Per DAS Scale

	Depression (D)	Anxiety (A)	Stress (S)
Normal	0-9	0-7	0-14
Mild	10- 13	8- 9	15- 18
Moderate	14- 20	10- 14	19- 25
Severe	21- 27	15- 19	26- 33
Extremely Severe	28+	20+	34+

METHODS

The current study included two hundred patients suffering from allergic rhinitis who visited the outpatient department of otolaryngology in a tertiary care centre of mid Himalayan region.

Inclusion Criteria

- 1 Age between 15 to 60 years
- 2 Clinical symptoms of AR

Exclusion Criteria

- 1 Age < 15, >60
- 2 Nasal polyps on Anterior Rhinoscopy
- 3 H/o cough/SOB

A questionnaire was prepared to enquire about the presenting symptoms (nasal congestion/blockage, sneezing, itching, running nose), duration of symptoms, aggravating factors and whether the symptoms were relieved in between attacks was filled up. All the patients were given the DASS questionnaire to assess the co-occurrence of depression/anxiety/stress amongst sufferers of allergic rhinitis.

RESULTS

The mean age of study participants was 34.0 (±12.4) years with 51% of female participants. The demographic characteristics in Table 2 show that 40.6% of the study population was unskilled worker by occupation followed by students (25.0%). All the participants belonged to rural area. The median duration of symptoms of allergic rhinitis with which the patients presented was 36 months. The patients presented with one or more of the symptoms. Majority of them complained of sneezing (95.8%) followed by running nose (90.6%) (Table 3). Dust, smoke and pollutants were reported to be aggravating factors by most of the patients (66.7%) followed by season changes or cold weather (63.3%).

Table 2: Demographic Characteristics

Age (in years), Mean (±SD)	34.0 (±12.4)
Sex,	

Males (%)	49
Females (%)	51
Occupation	
Unskilled (%)	40.6
Semiskilled and skilled (%)	13.6
Semiprofessional and professional (%)	14.6
Self employed/ business	6.3
Student	25.0

Table 3: Clinical Symptoms And Aggravating Factors

Symptoms present	Percentage (%)
Nasal congestion	80.2
Sneezing	95.8
Itching	55.2
Running nose	90.6
Aggravating factors	
Season/cold	63.3
Dust/smoke/pollution	66.7
Strong odour	13.3
Early morning	10

The DASS was applied to these patients and the scores were added. In the present study 49% of the patients were found to be suffering from depression (Mild, moderate, severe & extremely severe). The incidence of patients suffering from severe depression was 22.9% and those suffering from extremely severe depression was 16.7%. So in total 49.6% of the patients of allergic rhinitis were also having symptoms of severe and extremely severe depression on applying DASS. This amounts to substantial number of patients (Table 4).

Table 4: Percentage of Allergic Rhinitis Patients suffering from Depression, Anxiety and Stress using DASS

	Depression (%)	Anxiety (%)	Stress (%)
Normal	51	54.2	69.8
Mild	6.3	0	13.5
Moderate	3.1	3.1	10.4
Severe	22.9	12.5	3.1
Extremely severe	16.7	30.2	3.1
Total	100	100	100

The total number of patients suffering from anxiety was 45.8% (Mild, moderate, severe & extremely severe) on applying DASS. Of these patients 12.5% were classified as having severe anxiety and 30.2% were suffering from extremely severe anxiety. So 42.7% of patients were suffering from severe and extremely severe anxiety. In comparison to this only 30.2% (Mild, moderate, severe & extremely severe) were classified as having stress on DASS and only 3.1% & 3.1% were having severe and extremely severe stress respectively (Table 4).

So it is clear from this study that 49.6% and 42.7% patients of allergic rhinitis were concomitantly suffering from severe and extremely severe depression and anxiety respectively and only 6.2% were suffering from severe and extremely severe stress (Table 4).

DISCUSSION

Majority of studies (9 of 11 studies on anxiety syndromes, 10 of 12 studies on depressive syndromes) indicate associations between allergies and anxiety/mood syndromes, despite a number of methodological variances. There may be a number of allergy-related mediating variables, such as alterations in immunity/cytokines, the effects of nasal obstruction on sleep, disturbed cognitive functioning, and genetic overlap. Regardless, current evidence indicates that individuals with allergies appear to be at a higher risk, of an unknown degree, for developing various types of anxiety and/or mood syndromes⁵.

Cuffel et al⁶ found that a depression diagnosis was 1.7 times higher and anxiety symptoms were 1.41 times higher in individuals with allergies compared to those individuals without allergies.

Patten and Williams⁷ determined that major depression was more frequent in individuals with allergies (OR=1.5) than in individuals without allergies. They also stated that allergy sufferers had greater panic disorder (OR=1.7) and social phobia (OR=1.3) diagnoses.

According to the findings of a study conducted by Kovacs et al⁸, allergy was associated with an increased prevalence of any anxiety disorder

[OR = 1.3 (1.1, 1.6)], panic attacks [OR = 1.6 (1.1, 2.1)], panic disorder [OR = 1.6 (1.01, 2.3)], GAD [OR = 1.8 (1.1, 3.0)], any mood disorder [OR = 1.4 (1.1, 1.7)], depression [OR = 1.4 (1.1, 1.7)] and bipolar disorder [OR = 2.0, (1.0, 3.8)].

Derebery et al⁹ in 2008 studied 3831 participants with active rhinitis symptoms using a self-report symptom survey and found anxiety disorder to be 9.3% in rhinitis sufferers vs. 3.9% in controls and depressive disorder in 17.2% of rhinitis sufferers vs 8.3% of controls.

However, Marshall¹⁰ and Kennedy¹¹ separately found no association between rhinitis symptoms and anxiety states.

CONCLUSION

A great majority of the published studies carried out to determine whether an association exists between allergic rhinitis and negative emotional states indicate that individuals with allergies appear to be at a higher risk for developing various types of anxiety and/or mood syndromes. In the present study we found that 49.6% of allergic rhinitis patients suffered from severe and extremely severe depression. Strong association was also found between allergic rhinitis and anxiety with 42.7% of patients suffering from severe and extremely severe anxiety. Stress was found to be less associated with allergic rhinitis as only 3.1% and 3.1% of patients were found to be having severe and extremely severe stress. So we conclude that allergic rhinitis has strong association with depression and anxiety. We also found DASS as easy tool to measure the negative emotional state of depression, anxiety and stress.

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