

## Short Communication

# Impact of Environmental Psychosocial Work on Allergic Rhinitis Manifestations Severity

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## Abstract

**Objectives:** Allergic rhinitis had a marked burden in patients' quality of life. This study aimed to investigate the impact of psychosocial work environment on the severity of the allergic rhinitis symptoms.

**Methods:** A prospective study was investigating 84 occupational workers diagnosed with allergic rhinitis. Perceived Stress Scale was used to divide patients into 2 groups: Group A represents the psychosocial stressed allergic rhinitis patients while group B represent the non-stressed allergic rhinitis patients.

**Results:** A visual analogue scale (VAS) was used to evaluate the subjective allergic rhinitis symptoms severity according to Perceived Stress Scale results. There were a statistically significance more severity intensity of allergic rhinitis nasal symptoms in positive Perceived Stress Scale compared with non-stressed patients.

**Conclusion:** psychosocial work environment has a positively marked influence on expression of allergic rhinitis symptoms severity.

## Keywords

- Allergy
- Rhinitis
- Occupation
- Worker
- Psychosocial

## INTRODUCTION

Allergic rhinitis that could be a worldwide world pathological state, have hypersensitivity reactions together with nasal obstruction, watery symptom, nasal cutaneous sensation and innate reflex mediate when exposure to allergens via immunoglobulin response, had a marked burden in patients quality of life [1].

Recent decades reportable increase within the prevalence of hypersensitivity reaction throughout the planet about might affects from 15% to 19% of working aged adults with significantly alter patient social life and occupational productivity [2].

Many studies reportable that severity of the hypersensitivity reaction symptoms may affects work productive quality absence and socioeconomic burden either by annual prices of treatment or time lost from work square measure substantial that represent heavier burden in trendy societies [3].

Marshall et al., 2000 reported psychosocial issues may be occurred among patients with coryza as psychological feature impairment particularly throughout the continued spore season and a few conjointly had memory impairment with concentrations additionally he found a extended time to create selections and additional increase in their stress levels than healthy management subjects [4].

Negative effects typically according among hypersensitivity reaction patient's staff particularly sleep disturbance, daytime

temporary state and mood disorders that had high prevalence of total work productivity losses, major contributors to the overall value of health-related absence and presenters [5].

In addition, some studies demonstrate that hypersensitivity reaction impairs visual coordination, retention capability or short term memory, psychomotor speed, vigilance and attention [6].

Our study aimed to investigate the impact of psychosocial work environment on allergic rhinitis symptoms severity.

## MATERIALS AND METHODS

A prospective study was conducted in the otolaryngology and occupational medicine departments faculty of medicine, Al Madinah Al Munawwarah, Taibah University, Saudi Arabia from June 2019 to January 2022 and the local ethical committee approved the study protocol and a written consent was obtained from all participants.

Our study include 84 adult occupational workers patients with intermittent allergic rhinitis (nasal obstruction, rhinorrhea, sneezing) with the inclusion criteria symptoms < 4 days/week or <4weeks /episode according to Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update (in collaboration with the World Health Organization [7].

Patients with hypertrophic rhinitis, chronic sinusitis, nasal polyps, deviated septum, previous nasal surgical intervention or negative skin test were excluded from our study populations.

Study plan was designed a survey evaluating patients nasal symptoms, using a visual analogue scale (VAS) used to assess their symptoms, with 0 indicating no symptoms and 10 indicating severe symptoms.

All patients were subjected to a rigid nasal endoscopic examinations using a 4 mm diameter, 0°, Hopkins II endoscope; Karl Storz, Tuttlingen, Germany), CT sinus and Skin prickle test.

All patients were subjected to Perceived Stress Scale (PSS) which is the foremost broadly utilized mental instrument for measuring the recognition of stress. Obtained 14 questions with responses varying from 0 to 4 for each item and ranging from never, almost never, sometimes, fairly often, and very often, respectively, on the basis of their occurrence by reversing the scores on seven positive items, for example, 0 = 4, 1 = 3, 2 = 2, and so on and then summing across all 14 items. Seven out of the 14 items of PSS-14 are considered positive (4, 5, 6, 7, 9, 10, 13) and the remaining seven as negative (1, 2, 3, 8, 11, 12, 14), representing self-efficacy and perceived helplessness, respectively, The PSS-14 has a possible range of scores from 0 to 56. The upper two and lower two quartiles were combined (28 being the operational cutoff value for the upper bound) and were labeled as stressed and not stressed, respectively [8].

Patients were divided into 2 groups as follows: Group A represents the psychosocial stressed allergic rhinitis patients while group B represent the non - stressed allergic rhinitis patients.

Severity of allergic rhinitis symptoms by VAS was compared between two groups to determine the effect psychosocial stress on expression of allergic rhinitis symptoms.

### Statistical Analysis

Data collected were processed using SPSS version 15 (SPSS Inc., Chicago, IL, USA).

### Ethics Considerations

The local ethics committee approved the study. Written consent was obtained from parents of all study participants.

Written informed consent for the publication of these must be obtained from the participants.

## RESULTS

84 occupational participants, (mean age 34.2 years), with symptoms of intermittent allergic rhinitis according to ARIA 2008 guidelines<sup>(7)</sup> and positive skin prickle test were divided into 2 groups: Group A (36 patient were positive to Perceived Stress Scale -PSS) and Group B (48 patients were negative patients to Perceived Stress Scale -PSS).

The main symptoms among the Group A patients was sneezing in 33 (91.6%) while was in 44 patients (91.3%) in Group B followed by itchy nose in 29 patients (80.5%) and 38 patients (79.2%) respectively then nasal obstruction in 26 patients (72.2) and 33 patients (68.7%) respectively. watery eyes in 18 patients (50%) and 23 patients (47.9%) respectively and watery rhinorrhea in 21 patients (58.3%) and in 26 patients (54.1%) respectively while post nasal discharge in 5 patients (13.8%) in group A and in 7 patients (14.5%) in group B without

any statistically significance difference between both groups as seen in table 1.

The main findings in nasal examination among the Group A patients was pale, bluish mucosa in 31 (86.1%) while was in 40 patients (83.3%) in Group B followed by Watery mucosa in 21 patients (58.3%) and 26 patients (54.2) respectively then Infra orbital edema in 14 patients (38.8%) and 18 patients (37.5%) respectively. While Allergic shiner in 3 patients (8.3%) and in 4 patients (8.3%) respectively without any statistically significance difference between both groups as seen in table 2.

The mean severity intensity of nasal symptoms according to VAS among the Group A patients was sneezing 8.8 while was 6.17 in Group B, itchy nose was 7.8 and 5.49 respectively. Nasal obstruction was 9.4 and 6.12 respectively. Watery eyes were 6.5 and 4.17 respectively while watery rhinorrhea was 8.6 and 6.04 respectively. Post nasal discharge was 4.6 and 2.26 respectively with statistically significance more severity intensity of nasal symptoms in group A (positive Perceived Stress Scale (PSS) compared with non-stressed group B as seen in table 3.

## DISCUSSION

Allergic rhinitis that is taken into account as a standard chronic disorder might have an effect on the standard of life with frequent sleep disturbances and marked mood disturbances ends up in relevance general psychological feature functions and work performance [9].

In addition it has impact on health-related quality of life with a big negative impact on emotional and psychological eudemonia not solely have a negative morning hypersensitivity reaction symptoms however that that these symptoms well impact the person for the remainder of the day additionally negatively impact on home and work life and relationships with partners [10].

**Table 1:** The symptoms among both Group A and Group B.

Symptoms	Group A		Group B		P value
	N=36	%	N=48	%	
Nasal obstruction,	26	72.2	33	68.7	0.22
watery rhinorrhea	21	58.3	26	54.1	0.17
sneezing	33	91.6	44	91.3	0.85
itchy nose	29	80.5	38	79.2	0.52
watery eyes	18	50	23	47.9	0.44
Post-nasal drip	5	13.8	7	14.5	0.22

N = number of patients  
Insignificant p>0.05

**Table 2:** The nasal examination findings among both Group A and Group B.

Nasal examination findings	Group A		Group B		P value
	N=36	%	N=48	%	
pale, bluish mucosa	31	86.1	40	83.3	0.71
Watery mucosa	21	58.3	26	54.2	0.46
Infra orbital edema	14	38.8	18	37.5	0.17
Allergic shiner	3	8.3	4	8.3	0.75

N = number of patients  
Insignificant p>0.05

**Table 3:** Mean intensity symptoms among both Group A and Group B.

Symptom VAS	Group A		Group B		P
	N= 36		N= 48		
	Mean	SD	Mean	SD	
Congestion and obstruction,	9.4	0.62	6.12	1.28	0.028*
watery rhinorrhea	8.6	1.02	6.04	1.57	0.005**
sneezing	8.8	1.25	6.17	0.87	0.006**
itchy nose	7.8	1.17	5.49	0.92	0.025*
watery eyes	6.5	0.68	4.17	1.05	0.007**
Post-nasal drip	4.6	1.81	2.26	0.97	0.006**

\*Significant  $p < 0.05$ , \*\*highly significant  $p < 0.01$ .

Allergic rhinitis sometimes develop a psychological complaints associated with symptom severity shown to be absolutely related to temperament factors with higher levels of psychological distress amongst coryza sufferers with robust role in depression and alternative psychological disorders may be explained by social group factors [11,12].

The emotional and psychological factors had a powerful impact of rhinitis symptoms [13].

We found 36 (42.8%) allergic rhinitis workers patients were in positive Perceived Stress Scale.

Work is viewed as a vital facet of quality of life sometimes related to a better risk of common mental disorders particularly psychosocial operating atmosphere that cause a threat to the psychological state of employees [14].

We found in our study statistically significance more severity intensity of allergic rhinitis nasal symptoms in positive Perceived Stress Scale compared with non-stressed patients.

High levels of psychological distress are widespread within the operating population with calculable prevalence of high psychological distress about 4.5% and that of moderate distress at 9.6% in the USA employers [15].

Stress-Related Disorder (SRD) is term is applied to several overlapping stress-related ideas and diagnoses like nervous breakdown, adjustment disorders and burnout with a big a part of the work-related common mental disorders in coverage schemes by occupational physicians [16].

Stress is that the psychological state that results once resources of a personal aren't enough to trot out the strain and pressure of the things has effects on practice, together with prescribing errors, lack of team work, additional patients' criticism, and illness absence [17].

We choose the perceived stress scale in our study to assess stress level because this scale has been documented for its reliability and validity also has the advantage it can be applied to a wide range of settings, to different subject types, and includes items measuring reactions to stressful situations as well as measures of stress [18].

Stress thought-about as a the trigger sure allergic disorders by hormones and brain chemicals free into the blood in response to fret that systema nervosum determines however the body responds to Negative emotional responses that unleash neurotransmitters influence the system [19].

Some authors found that stress could be coupled to allergic reaction by aerophilous stress pathways that allergies unable to detoxify sure atomic number 8 molecules like tobacco smoke or pollution and psychological stress may play with environmental factors will increase aerophilous toxicity and airway inflammation [20].

## CONCLUSION

Psychosocial work environment has a positively marked influence on expression of allergic rhinitis symptoms severity.

## ETHICAL APPROVAL

Institutional Ethical Committee, Medical University, approved this study.

## AUTHORS' CONTRIBUTIONS

MRA conceived and designed the study; supervised the data collection; analyzed and interpreted data; wrote the initial and final drafts of the article; and gave final approval of the draft. TMJ designed and conducted research; provided research materials; collected organized, analyzed, and interpreted data; wrote the initial and final drafts of the article; and gave final approval of the draft. All authors agree to be accountable for all aspects of the work in ensuring that questions associated with the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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