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Assessment of psychological symptom burden using the Hospital Anxiety and Depression Scale in different allergic disease groups

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ABSTRACT

Aims: The aim of this study is to evaluate the prevalence of anxiety and depression in patients attending the Immunology and Allergy outpatient clinic using the Hospital Anxiety and Depression Scale (HADS) and to examine the differences between different disease groups.

Methods: This descriptive cross-sectional study was conducted in December 2025 at the Immunology and Allergy Outpatient Clinic of Samsun Training and Research Hospital. A total of 215 patients aged 18 years and older were included in the study. The patients' demographic characteristics were recorded, and the HADS was administered. For both subscales, scores of 0-7 were considered normal, 8-10 were considered borderline, and 11-21 were considered abnormal.

Results: 61.40% of patients were female, with a median age of 42 (27-56) years. The most common diagnoses were allergic rhinitis (29.77%), chronic urticaria (28.84%), and asthma (19.53%). 24.65% of patients showed borderline anxiety, 25.12% showed abnormal anxiety; 17.21% showed borderline depression, and 13.95% showed abnormal depression. The depression score was significantly higher in the chronic urticaria group compared to the allergic rhinitis group ($p=0.023$). No difference was found between the diagnosis groups in terms of anxiety scores ($p=0.369$). The anxiety rate was significantly higher in females than in males ($p<0.001$).

Conclusion: Symptoms of anxiety and depression are frequently observed in allergic diseases. The high rate of depression, particularly in patients with chronic urticaria, suggests that clinicians should be vigilant for psychological distress in this patient group.

Keywords: Allergic diseases, anxiety, depression, hospital anxiety and depression scale, chronic urticaria

INTRODUCTION

Asthma, allergic rhinitis, atopic dermatitis, and chronic urticaria continue to represent a growing global health burden, with their absolute case numbers rising steadily worldwide.[1] Given their chronic and relapsing course, these diseases impose a heavy symptomatic burden that disrupts daily functioning and undermines the patient's quality of life across physical, psychological, and social dimensions.[2] Suboptimal disease control often drives up healthcare utilization while simultaneously triggering productivity losses through absenteeism and diminished workplace efficiency.[3] Crucially, this clinical burden extends beyond somatic manifestations; systematic reviews and meta-analyses indicate a heightened prevalence of anxiety and depression among allergic patients, with certain phenotypes showing a clear correlation between psychological symptoms and disease severity.[4,5] Compelling evidence now underscores a complex, bidirectional relationship, suggesting that allergic conditions and psychiatric symptoms often reinforce one another.[6] Psychiatric symptoms often undermine treatment adherence and self-management, thereby complicating disease control; conversely, acute flare-ups and distressing symptoms like pruritus or dyspnea further exacerbate the patient's psychological distress.[7] Several pathways may underpin this reciprocal relationship, ranging from neuroinflammation and cytokine-driven neuroimmune signaling to hypothalamic-pituitary-adrenal axis activation, neurotransmitter imbalances, and various psychosocial or lifestyle influences.[5,8]

Patients with chronic urticaria exhibit significantly higher rates of depression and anxiety than healthy individuals, with the severity of these psychological symptoms often mirroring the level of disease activity.[9] In the context of asthma, anxiety and depression serve as independent predictors of poor disease control and a subsequent rise in healthcare resource consumption.[10] In a similar vein, the severity of allergic rhinitis symptoms appears to drive higher levels of anxiety and depression, a process often exacerbated by significant sleep disruption and an overall decline in quality of life.[11]

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Evidence synthesized from systematic reviews and meta-analyses underscores a robust link between rhinitis and a heightened risk of both depression and anxiety.[12] Atopic dermatitis is frequently characterized by debilitating pruritus and subsequent sleep fragmentation; indeed, literature reviews indicate that sleep disturbances affect between 33% and 90% of adults, profoundly exacerbating the associated psychological distress.[13] The consistency of these findings across various allergic phenotypes underscores the clinical necessity of screening for psychological distress in allergy settings and ensuring timely psychiatric referral when warranted.[5]

Despite a vast body of literature on psychological comorbidities in allergy, much of the current evidence remains limited by small sample sizes, cross-sectional methodologies, and a narrow focus on isolated disease phenotypes.[5,14] To date, research characterizing the burden of anxiety and depression in conditions like chronic urticaria and allergic rhinitis has primarily relied on isolated, disease-specific cohorts, often lacking a broader comparative context.[15-17] However, there remains a paucity of research that evaluates multiple allergic phenotypes within a single cohort using standardized screening tools, which calls into question the broader clinical generalizability of currently available data.[5,14] In Turkiye, existing research is predominantly characterized by single-center data, leaving a notable gap in evidence regarding broad-spectrum, comparative screenings conducted within adult immunology and allergy settings.[15-17] Given that systematic management of comorbidities has proven effective in enhancing control for severe or treatment-resistant asthma, identifying and addressing the psychological burden has become indispensable for achieving optimal therapeutic outcomes.[18,19] Given that stress plays a pivotal role in modulating neuroimmune and neuroendocrine pathways, effective clinical management must extend beyond controlling allergic inflammation to include the proactive screening and management of psychological symptoms where appropriate.[20]

The objective of the present study was to assess the prevalence of anxiety and depression among patients in an immunology and allergy setting using the Hospital Anxiety and Depression Scale (HADS), while further investigating how these psychological burdens vary across distinct allergic phenotypes.

METHODS

This descriptive cross-sectional study was conducted after obtaining approval from the Samsun Training and Research Hospital Non-interventional Clinical Researches Ethics Committee (Date: 12.11.2025, Decision No: GOKAEK 2025/22/20). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

The study was conducted in patients who applied to the Immunology and Allergy Diseases Outpatient Clinic of Samsun Training and Research Hospital in December 2025. Consecutive patients who applied to the outpatient clinic between the specified dates and met the inclusion criteria were included in the study. Patients aged 18 years and older were included in the study. Pregnant women, those undergoing active malignancy treatment, those with a psychiatric diagnosis and undergoing treatment, those with neurological diseases that could affect cognitive function, those who had received systemic corticosteroid treatment within the last month, and those who declined to participate were excluded from the study.

The sample size was calculated using the G*Power 3.1 program. For the ANOVA analysis, a medium effect size (f=0.25), 95% confidence interval, 80% statistical power, and α=0.05 significance level were determined to require a total of 180 participants for 4 groups. Considering potential data losses, a minimum of 200 patients was targeted. Owing to limited sample sizes within several individual diagnostic categories, conditions other than asthma, allergic rhinitis, and chronic urticaria were pooled into a single 'Other' group for statistical comparison. This approach was adopted to preserve adequate statistical power for between-group analyses while retaining the full dataset.

The patients' demographic characteristics (age, gender, height, weight, body mass index, smoking status) and diagnoses were recorded. Diagnoses were made based on the Global Initiative for Asthma guidelines for asthma and the EAACI/GA²LEN/EuroGuiDerm/APAAACI guidelines for urticaria. Diagnoses were made based on the relevant guidelines. The HADS was used to assess anxiety and depression. Developed by Zigmond and Snaith, this scale consists of a total of 14 items, 7 for anxiety and 7 for depression.[21] The validity and reliability study of the scale in Turkish was conducted by Aydemir and colleagues.[22] In line with the validated Turkish adaptation, scores of 0-7 were classified as normal, 8-10 as borderline, and 11-21 as abnormal for both subscales.

Statistical Analysis

All analyses were conducted using IBM SPSS version 27 (IBM Corp., Armonk, NY, USA). Two-tailed p-values of less than 0.05 were considered statistically significant. Normal distribution assumption was checked using the histograms and Q-Q plots. Descriptive statistics were presented using mean±standard deviation for normally distributed continuous variables, median (25th percentile-75th percentile) for non-normally distributed continuous variables and frequency (percentage) for categorical variables. Continuous variables were analyzed using one-way analysis of variance (ANOVA) or Kruskal Wallis test depending normality of distribution. Categorical variables were analyzed using the chi-square test or Fisher-Freeman-Halton test. Pairwise comparisons were adjusted using Bonferroni correction method.

RESULTS

A total of 215 patients were included in the study. 61.40% of the patients (n=132) were female, and the median age was 42 (27-56) years. The mean body mass index was 28.24±5.84 kg/m². The most common diagnoses were allergic rhinitis (29.77%), chronic urticaria (28.84%), and asthma (19.53%), respectively. According to the HADS anxiety score, 24.65% of patients showed borderline anxiety symptoms, while 25.12% showed abnormal anxiety symptoms; according to the HADS depression score, 17.21% showed borderline depression

symptoms, while 13.95% showed abnormal depression symptoms (Table 1).

Table 1. Summary of demographics, diagnosis and HADS scores

Age	42 (27-56)
Sex	
Male	83 (38.60%)
Female	132 (61.40%)
Height, cm	166.21±9.16
Weight, kg	77.91±16.48
Body mass index, kg/m²	28.24±5.84
Smoking status	
Active smoker	58 (26.98%)
Ex-smoker	28 (13.02%)
Non-smoker	129 (60.00%)
Diagnosis	
Asthma	42 (19.53%)
Allergic rhinitis	64 (29.77%)
Chronic urticaria	62 (28.84%)
Bee allergy	5 (2.33%)
Drug allergy	7 (3.26%)
Immunodeficiency	4 (1.86%)
Pruritus	5 (2.33%)
Gastrointestinal disease	5 (2.33%)
Angioedema	6 (2.79%)
Dermatitis	8 (3.72%)
Non-specific	6 (2.79%)
Food allergy	1 (0.47%)
HADS Anxiety score	7 (4-11)
Normal (0-7)	108 (50.23%)
Borderline (8-10)	53 (24.65%)
Abnormal (11-21)	54 (25.12%)
HADS depression score	5 (3-8)
Normal (0-7)	148 (68.84%)
Borderline (8-10)	37 (17.21%)
Abnormal (11-21)	30 (13.95%)

Descriptive statistics are presented using mean±standard deviation for normally distributed continuous variables, median (25th percentile-75th percentile) for non-normally distributed continuous variables and frequency (percentage) for categorical variables. HADS: Hospital Anxiety and Depression Scale

When demographic and HADS scores were compared according to diagnosis groups, the median age of asthmatic patients (52 years) was significantly higher than that of allergic rhinitis and other diagnosis groups (p<0.001). The mean body mass index (30.40±6.71 kg/m²) was significantly higher in asthmatic patients compared to the other group (p=0.042). The rate of active smoking was significantly lower in the asthma group (7.14%) compared to the chronic urticaria and other groups (p=0.037). The HADS depression score was significantly higher in the chronic urticaria group (median: 7) compared to the allergic rhinitis group (median: 4) (p=0.023), while no difference was found between the groups in terms of anxiety scores (p=0.369) (Table 2).

When evaluated according to HADS anxiety score groups, the female gender ratio was 47.22% in the normal group, 69.81% in the borderline group, and 81.48% in the abnormal group, with the normal group being significantly lower than the other groups (p<0.001). The mean height was significantly higher in the normal group (168.55±9.53 cm) compared to the borderline and abnormal groups (p<0.001). No significant differences were found between anxiety groups in terms of age, body mass index, smoking status, and diagnosis distribution (Table 3).

In the comparison based on HADS depression score groups, no statistically significant differences were found between the groups in terms of age, gender, height, weight, body mass index, smoking status, and diagnosis distribution (Table 4).

DISCUSSION

In this descriptive cross-sectional study of 215 adults, HADS assessments revealed a substantial psychological symptom burden within the immunology and allergy outpatient setting. Notably, nearly half of the cohort exhibited clinically significant anxiety, with 24.65% scoring at borderline and 25.12% at abnormal levels. Depressive symptoms were similarly prevalent, affecting approximately one-third of the participants (17.21% borderline; 13.95% abnormal). While anxiety scores remained consistent across diagnostic groups (p=0.369), depression scores were significantly higher in patients with chronic urticaria compared to those with allergic rhinitis (median 7 vs. 4; p=0.023). Furthermore, the markedly higher prevalence of anxiety among females (p<0.001) identifies gender as a key determinant of psychological burden in this population. These findings underscore that psychological symptoms are a pervasive component of the clinical picture; specifically, the elevated depressive burden in chronic urticaria warrants targeted screening. Consequently, integrating routine psychological assessment and appropriate referral pathways is essential for delivering comprehensive allergy care.

Our findings revealed a prevalence of 49.8% for anxiety and 31.2% for depression. While the existing literature presents a broad range of prevalence rates, these discrepancies often stem from methodological variations, including the choice of screening tools, specific cutoff points, and the inherent bias of tertiary care populations. Consequently, direct comparisons between our screening-based data and results derived from formal diagnostic interviews warrant a cautious interpretation.[23,24] Consistent with our findings, observational meta-analyses underscore that patients with chronic urticaria face a markedly elevated risk of anxiety and depression compared to their healthy counterparts.[25,26] Parallel to these findings, global systematic reviews and meta-analyses consistently link allergic rhinitis to an elevated risk of depression and anxiety; these trends are mirrored in domestic data from Turkiye, albeit with varying degrees of association.[12,17,23] Within the asthma landscape, anxiety and depression have emerged as independent drivers of suboptimal disease control, impaired quality of life, and

Table 2. Summary of demographics and HADS scores with regard to diagnosis

	Diagnosis				
	Asthma (n=42)	**Allergic rhinitis (n=64)**	**Chronic urticaria (n=62)**	**Other (n=47)**	**p**
Age	52 (40-62)	34 (24.5-46.5)*	43 (29 - 55)	38 (26-54)*	<0.001‡
Sex					
Male	12 (28.57%)	25 (39.06%)	25 (40.32%)	21 (44.68%)	0.458§
Female	30 (71.43%)	39 (60.94%)	37 (59.68%)	26 (55.32%)	
Height, cm	164.71±9.89	167.16±9.52	166.21±8.80	166.26±8.53	0.617†
Weight, kg	81.62±14.67	77.80±18.00	77.73±15.30	74.98±17.23	0.307†
Body mass index, kg/m²	30.40±6.71	27.72±5.43	28.20±5.61	27.06±5.53*	0.042†
Smoking status					
Active smoker	3 (7.14%)	17 (26.56%)	19 (30.65%)*	19 (40.43%)*	0.037§
Ex-smoker	7 (16.67%)	9 (14.06%)	8 (12.90%)	4 (8.51%)	
Non-smoker	32 (76.19%)	38 (59.38%)	35 (56.45%)	24 (51.06%)	
HADS anxiety score	7 (3-11)	7 (4-10)	7.5 (4-10)	9 (5-12)	0.369‡
Normal (0-7)	23 (54.76%)	35 (54.69%)	31 (50.00%)	19 (40.43%)	0.566§
Borderline (8-10)	7 (16.67%)	17 (26.56%)	16 (25.81%)	13 (27.66%)	
Abnormal (11-21)	12 (28.57%)	12 (18.75%)	15 (24.19%)	15 (31.91%)	
HADS depression score	6 (4-8)	4 (2-7.5)	7 (4-10)#	6 (3-8)	0.023‡
Normal (0-7)	31 (73.81%)	48 (75.00%)	35 (56.45%)	34 (72.34%)	0.124§
Borderline (8-10)	5 (11.90%)	12 (18.75%)	15 (24.19%)	5 (10.64%)	
Abnormal (11-21)	6 (14.29%)	4 (6.25%)	12 (19.35%)	8 (17.02%)	

Descriptive statistics are presented using mean±standard deviation for normally distributed continuous variables, median (25th percentile - 75th percentile) for non-normally distributed continuous variables and frequency (percentage) for categorical variables. † One-way analysis of variance (ANOVA), ‡ Kruskal Wallis test, § Chi-square test. * Significantly different from "Asthma" group, # Significantly different from "Allergic rhinitis" group. Statistically significant p values are shown in bold. HADS: Hospital Anxiety and Depression Scale

Table 3. Summary of demographics and diagnosis with regard to HADS anxiety score groups

	HADS anxiety score			
	Normal (0-7) (n=108)	**Borderline (8-10) (n=53)**	**Abnormal (11-21) (n=54)**	**p**
Age	42 (29-55.5)	41 (29-56)	43 (24-54)	0.688‡
Sex				
Male	57 (52.78%)	16 (30.19%)*	10 (18.52%)*	<0.001§
Female	51 (47.22%)	37 (69.81%)*	44 (81.48%)*	
Height, cm	168.55±9.53	164.66±7.83*	163.06±8.46*	<0.001†
Weight, kg	79.34±16.36	77.57±16.62	75.37±16.58	0.348†
Body mass index, kg/m²	27.87±5.05	28.71±6.42	28.50±6.72	0.647†
Smoking status				
Active smoker	26 (24.07%)	13 (24.53%)	19 (35.19%)	0.574§
Ex-smoker	16 (14.81%)	7 (13.21%)	5 (9.26%)	
Non-smoker	66 (61.11%)	33 (62.26%)	30 (55.56%)	
Diagnosis				
Asthma	23 (21.30%)	7 (13.21%)	12 (22.22%)	0.566§
Allergic rhinitis	35 (32.41%)	17 (32.08%)	12 (22.22%)	
Chronic urticaria	31 (28.70%)	16 (30.19%)	15 (27.78%)	
Other	19 (17.59%)	13 (24.53%)	15 (27.78%)	

Descriptive statistics are presented using mean±standard deviation for normally distributed continuous variables, median (25th percentile-75th percentile) for non-normally distributed continuous variables and frequency (percentage) for categorical variables. † One-way analysis of variance (ANOVA), ‡ Kruskal Wallis test, § Chi-square test, * Significantly different from "Normal" group. Statistically significant p values are shown in bold. HADS: Hospital Anxiety and Depression Scale

Table 4. Summary of demographics and diagnosis with regard to HADS depression score groups

	HADS depression score			
	Normal (0-7) (n=148)	**Borderline (8-10) (n=37)**	**Abnormal (11-21) (n=30)**	**p**
Age	40 (27-55)	41 (26-56)	44 (31-57)	0.382‡
Sex				
Male	53 (35.81%)	19 (51.35%)	11 (36.67%)	0.215§
Female	95 (64.19%)	18 (48.65%)	19 (63.33%)	
Height, cm	166.36±8.98	167.86±9.04	163.40±9.86	0.130†
Weight, kg	76.89±16.96	80.89±16.41	79.27±13.92	0.372†
Body-mass index, kg/m²	27.75±5.66	28.75±5.75	30.02±6.58	0.126†
Smoking status				
Active smoker	35 (23.65%)	10 (27.03%)	13 (43.33%)	0.070¶
Ex-smoker	19 (12.84%)	8 (21.62%)	1 (3.33%)	
Non-smoker	94 (63.51%)	19 (51.35%)	16 (53.33%)	
Diagnosis				
Asthma	31 (20.95%)	5 (13.51%)	6 (20.00%)	0.124§
Allergic rhinitis	48 (32.43%)	12 (32.43%)	4 (13.33%)	
Chronic urticaria	35 (23.65%)	15 (40.54%)	12 (40.00%)	
Other	34 (22.97%)	5 (13.51%)	8 (26.67%)	

Descriptive statistics are presented using mean ± standard deviation for normally distributed continuous variables, median (25th percentile-75th percentile) for non-normally distributed continuous variables and frequency (percentage) for categorical variables. † One-way analysis of variance (ANOVA), ‡ Kruskal Wallis test, § Chi-square test, ¶ Fisher-Freeman-Halton test. HADS: Hospital Anxiety and Depression Scale

escalated healthcare utilization-a relationship that becomes increasingly pronounced as the multimorbidity burden grows in difficult-to-treat phenotypes.[10,18,27] In atopic dermatitis, a deleterious biobehavioral cycle fueled by persistent pruritus and sleep fragmentation serves to solidify and exacerbate symptoms of depression and anxiety.[28,29] Given the consistent patterns observed across diverse allergic phenotypes and the substantial symptom burden identified here, our findings provide a compelling rationale for integrating brief mental health screening tools into routine allergy consultations.[27]

Our data demonstrate that HADS depression scores were significantly higher in patients with chronic urticaria than in those with allergic rhinitis, suggesting that the depressive burden is particularly salient within this specific subgroup.[30] One plausible mechanism is that intractable itching compromises sleep quality, triggering a cascade of daytime exhaustion and reduced psychosocial functioning. This creates a self-perpetuating biobehavioral framework where itching and depression act as mutual catalysts.[31] Within the context of chronic spontaneous urticaria, compromised sleep quality correlates strongly with a decline in patient quality of life, typically manifesting alongside intensified pruritus and elevated HADS depression scores.[32] Visible cutaneous symptoms and potential angioedema episodes frequently exacerbate social avoidance and body-focused anxiety. This, coupled with the disease's fluctuating course, can erode the patient's perceived locus of control, ultimately entrenching maladaptive patterns of hopelessness.[33,34] Moreover, the erratic and fluctuating nature of the condition, coupled with the persistent uncertainty of flare-ups, undermines the patient's sense of agency. This perceived lack of control often culminates in a psychological framework dominated by learned helplessness and hopelessness.[35] However, as much of the existing literature relies on cross-sectional designs, the bidirectional nature of the relationship remains elusive. It remains challenging to discern whether depression acts as a precursor to or a consequence of urticaria, particularly when accounting for shared biological pathways, potential pharmacotherapy side effects, and the inherent selection bias of tertiary care populations.[30,36] Therefore, rather than prioritizing clinical remission alone, clinicians should adopt a comprehensive management model that routinely screens for psychological distress. Integrating mental health support into the standard treatment plan is essential for optimizing long-term outcomes in patients with high psychiatric burdens.[37]

Our data reveal a compelling dose-response relationship between gender and anxiety; as HADS scores escalated from normal to abnormal levels, the proportion of female participants rose sharply from 47.22% to 81.48% ($p<0.001$), identifying female sex as a pivotal determinant of psychological symptom burden. Given that age, body mass index, smoking habits, and diagnostic distribution remained comparable across anxiety subgroups, it appears that this gender-based disparity cannot be attributed to differences in clinical phenotype or demographic composition alone. Synthesized evidence from global meta-analyses indicates that anxiety disorders are nearly twice as prevalent in women, and this gender difference appears consistent across a wide range of geographic and cultural contexts.[38] The female-predominant anxiety gradient identified in our cohort aligns with clinical evidence suggesting that reproductive hormone fluctuations prime anxiety sensitivity. This phenomenon is likely mediated by heightened hypothalamic-pituitary-adrenal axis reactivity and an intensified neural response to perceived threats in women.[39] Nevertheless, these screening-based rates should be interpreted with caution. The disproportionate representation of women in tertiary outpatient settings, combined with potential gender-related variations in symptom reporting,

may artificially inflate prevalence estimates due to referral and measurement bias.[40] Consequently, our findings underscore the necessity of integrating targeted mental health screenings and streamlined referral pathways into allergy practice, emphasizing the need for a gender-sensitive lens when interpreting patient distress.

Our study underscores the substantial psychological symptom burden, suggesting that managing allergic diseases through somatic control alone remains inadequate. We propose a comprehensive clinical framework in which routine psychological screening, multidisciplinary collaboration, and the systematic use of tools like the HADS are integral to achieving therapeutic success. As a rapid screening instrument specifically validated for medical populations, the HADS offers a robust and reliable measure across diverse somatic cohorts. Its routine integration into outpatient follow-ups provides a standardized framework for monitoring the psychological burden, ensuring that affective symptoms are tracked as consistently as physical markers.[21,41] The clinical impetus for this integration transcends symptom identification; it is fundamentally about enhancing therapeutic outcomes. Extensive meta-analyses have established a clear link between untreated anxiety or depression and medication non-adherence. Consequently, early detection through routine screening serves as a catalyst for improved disease control, better sleep quality, and overall functional recovery.[42] Implementing the HADS at both baseline and follow-up visits facilitates the early identification of at-risk patients while allowing for the quantitative tracking of symptom trajectories over time. Adopting a structured, multidisciplinary care model for positive cases provides a feasible and evidence-based strategy, proven to yield clinically meaningful improvements in both depression and anxiety outcomes.[41,43] Incorporating brief screening instruments like the HADS into routine allergy practice ensures that psychological comorbidities are identified at an early stage. This visibility facilitates the proactive implementation of interventions designed to bolster treatment adherence, enhance self-management, and ultimately achieve patient-centered quality of life goals.[5] Ultimately, this framework establishes a practical and sustainable standard of care by unifying somatic disease management with patient-centered outcomes.

Limitations

While our findings provide valuable insights, they must be interpreted in light of several methodological limitations. First, the cross-sectional nature of this study precludes the establishment of temporal precedence or causality. Consequently, the observed associations between allergic diseases and psychological symptoms should be interpreted as evidence of co-occurrence rather than a directional or causal link. Second, because our data were derived from a single tertiary referral center, the results are subject to potential selection bias. This may limit the extent to which these findings can be generalized to patients managed in primary or secondary healthcare settings, who may present with different disease profiles. Third, because the HADS identifies symptom thresholds rather than establishing clinical diagnoses, our findings reflect psychological distress levels that may not perfectly align with formal psychiatric classifications, due to the lack of confirmatory clinical interviews. Accordingly, the term 'psychological symptom burden' is used throughout this manuscript to reflect the screening-based nature of our assessments, rather than 'psychiatric comorbidity,' which implies confirmed clinical diagnoses. Additionally, validated disease-specific severity instruments-such as the Urticaria Activity Score for chronic urticaria, the Asthma Control Test for asthma, and established rhinitis severity indices-were not administered. As a consequence, we were unable to stratify participants according to disease activity or to evaluate whether psychological symptom burden varied as a function of disease severity. This is an important gap in our study, particularly given that the literature has repeatedly shown a clear link between how severe the disease is and how pronounced the accompanying psychological symptoms tend to be. Another point worth noting is that the 'Other' category brought together quite different conditions under a single heading, potentially blurring any psychological characteristics unique to a particular diagnosis. Larger studies in the future should ideally have enough patients to analyze each of these rarer conditions on its own.

CONCLUSION

Our study reveals a substantial psychological symptom burden among adults attending a tertiary Immunology and Allergy clinic. Utilizing the HADS as a screening tool, we identified clinically significant anxiety in nearly half of the cohort, while one-third of the patients exhibited depressive symptoms. These results advocate for the routine integration of brief screening instruments in allergy clinics, followed by structured clinical interviews to validate positive cases and ensure appropriate psychiatric referral. Serial psychological assessments during follow-up visits facilitate the longitudinal monitoring of sleep quality, pruritus, and overall functionality, thereby providing a more objective measure of therapeutic response. To build upon these findings, future research should adopt multicenter prospective designs that incorporate healthy control groups and account for disease severity and specific treatment modalities.

ETHICAL DECLARATIONS

Ethics Committee Approval

This study was conducted after obtaining approval from the Samsun Training and Research Hospital Non-interventional Clinical Researches Ethics Committee (Date: 12.11.2025, Decision No: GOKAEK 2025/22/20).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights-including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The author declare no conflicts of interest related to this study.

Financial Disclosure

The author received no financial support for the conduct or publication of this research.

Author Contributions

The author is solely responsible for the conception, data collection, analysis, and writing of this manuscript.

REFERENCES

1. GBD 2021 Asthma and Allergic Diseases Collaborators. Global, regional, and national burden of asthma and atopic dermatitis, 1990-2021, and projections to 2050: a systematic analysis of the global burden of disease study 2021. *Lancet Respir Med.* 2025;13(5):425-446. doi:10.1016/S2213-2600(25)00003-7
2. Baiardini I, Braido F, Brandi S, Canonica GW. Allergic diseases and their impact on quality of life. *Ann Allergy Asthma Immunol.* 2006;97(4):419-476. doi:10.1016/S1081-1206(10)60928-3
3. Agache I, Torres M, Eguiluz-Gracia I, et al. Economic impact of allergic diseases and asthma-the HEAD pan-european registry. *Allergy.* 2025; 80(6):1677-1701. doi:10.1111/all.16596
4. Xu X, Li S, Chen Y, et al. Association between allergic diseases and mental health conditions: an umbrella review. *J Allergy Clin Immunol.* 2025;155(3):701-713. doi:10.1016/j.jaci.2024.10.030
5. Conway AE, Verdi M, Kartha N, et al. Allergic diseases and mental health. *J Allergy Clin Immunol Pract.* 2024;12(9):2298-2309. doi:10.1016/j.jaip.2024.05.049
6. Chida Y, Hamer M, Steptoe A. A bidirectional relationship between psychosocial factors and atopic disorders: a systematic review and meta-analysis. *Psychosom Med.* 2008;70(1):102-116. doi:10.1097/PSY.0b013e31815c1b71
7. Jarosz M, Syed S, Błachut M, Badura Brzoza K. Emotional distress and quality of life in allergic diseases. *Wiad Lek.* 2020;73(2):370-373.
8. González-Díaz SN, Arias-Cruz A, Elizondo-Villarreal B, Monge-Ortega OP. Psychoneuroimmunoendocrinology: clinical implications. *World Allergy Organ J.* 2017;10(1):19. doi:10.1186/s40413-017-0151-6
9. Huang Y, Xiao Y, Zhang X, Li J, Chen X, Shen M. A meta-analysis of observational studies on the association of chronic urticaria with symptoms of depression and anxiety. *Front Med (Lausanne).* 2020;7:39. doi:10.3389/fmed.2020.00039
10. Di Marco F, Verga M, Santus P, et al. Close correlation between anxiety, depression, and asthma control. *Respir Med.* 2010;104(1):22-28. doi:10.1016/j.rmed.2009.08.005
11. Muñoz-Cano R, Ribó P, Araujo G, Giralt E, Sanchez-Lopez J, Valero A. Severity of allergic rhinitis impacts sleep and anxiety: results from a large Spanish cohort. *Clin Transl Allergy.* 2018;8:23. doi:10.1186/s13601-018-0212-0
12. Rodrigues J, Franco-Pego F, Sousa-Pinto B, Bousquet J, Raemdonck K, Vaz R. Anxiety and depression risk in patients with allergic rhinitis: a systematic review and meta-analysis. *Rhinology.* 2021;59(4):360-373. doi:10.4193/Rhin21.087
13. Bawany F, Northcott CA, Beck LA, Pigeon WR. Sleep disturbances and atopic dermatitis: relationships, methods for assessment, and therapies. *J Allergy Clin Immunol Pract.* 2021;9(4):1488-1500. doi:10.1016/j.jaip.2020.12.007
14. Minhas S, Chandan JS, Knibb R, Diwakar L, Adderley N. Association between atopic disorders and mental ill health: a UK-based retrospective cohort study. *BMJ Open.* 2025;15(5):e089181. doi:10.1136/bmjopen-2024-089181
15. Tat TS. Higher levels of depression and anxiety in patients with chronic urticaria. *Med Sci Monit.* 2019;25:115-120. doi:10.12659/MSM.912362
16. Bavbek S, Kumbasar H, Tuğcu H, Misirligil Z. Psychological status of patients with seasonal and perennial allergic rhinitis. *J Investig Allergol Clin Immunol.* 2002;12(3):204-210.
17. Tas HI, Caglar O. The role of anxious temperament in patients with allergic rhinitis. *Saudi Med J.* 2019;40(1):45-51. doi:10.15537/smj.2019.1.23754
18. Kurukulaaratchy RJ, Freeman A, Bansal AT, et al. Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts. *Lancet Respir Med.* 2025;13(9):821-832. doi:10.1016/S2213-2600(25)00135-3
19. Porsbjerg C, Melén E, Lehtimäki L, Shaw D. Asthma. *Lancet.* 2023; 401(10379):858-873. doi:10.1016/S0140-6736(22)02125-0
20. Oland AA, Booster GD, Bender BG. Integrated behavioral health care for management of stress in allergic diseases. *Ann Allergy Asthma Immunol.* 2018;121(1):31-36. doi:10.1016/j.anai.2018.05.002
21. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand.* 1983;67(6):361-370. doi:10.1111/j.1600-0447.1983.tb09716.x
22. Aydemir O, Hastane anksiyete ve depresyon olcegi Turkce formunun gecerlilik ve guvenilirligi. *Turk Psikiyatri Derg.* 1997;(**8**):187-280.
23. Safia A, Elhadi UA, Karam M, Merchavy S, Khater A. A meta-analysis of the prevalence and risk of mental health problems in allergic rhinitis patients. *J Psychosom Res.* 2024;184:111813. doi:10.1016/j.jpsychores.2024.111813
24. Snaith RP. The hospital anxiety and depression scale. *Health Qual Life Outcomes.* 2003;1:29. doi:10.1186/1477-7525-1-29
25. Huang Y, Xiao Y, Zhang X, Li J, Chen X, Shen M. A meta-analysis of observational studies on the association of chronic urticaria with symptoms of depression and anxiety. *Front Med (Lausanne).* 2020;7:39. doi:10.3389/fmed.2020.00039
26. Shariat M, Pourpak Z, Sabetkish N, Khalesi M, Sharifi L, Moin M. Evaluation of psychological score and quality of life in adults with allergic rhinitis and assessment of related risk factors. *Tanaffos.* 2017; 16(3):233-239.
27. Stanescu S, Kirby SE, Thomas M, Yardley L, Ainsworth B. A systematic review of psychological, physical health factors, and quality of life in adult asthma. *NPJ Prim Care Respir Med.* 2019;29(1):37. doi:10.1038/s41533-019-0149-3
28. Weidinger S, Beck LA, Bieber T, Kabashima K, Irvine AD. Atopic dermatitis. *Nat Rev Dis Primers.* 2018;4(1):1. doi:10.1038/s41572-018-0001-z
29. LeBovidge JS, Schneider LC. Depression and anxiety in patients with atopic dermatitis: recognizing and addressing mental health burden. *Ann Allergy Asthma Immunol.* 2025;134(5):506-515. doi:10.1016/j.anai.2025.02.017
30. Konstantinou GN, Konstantinou GN. Psychiatric comorbidity in chronic urticaria patients: a systematic review and meta-analysis. *Clin Transl Allergy.* 2019;9:42. doi:10.1186/s13601-019-0278-3
31. Huang Y, Xiao Y, Jing D, et al. Association of chronic spontaneous urticaria with anxiety and depression in adolescents: a mediation analysis. *Front Psychiatry.* 2021;12:655802. doi:10.3389/fpsyt.2021.655802
32. Sánchez-Díaz M, Rodríguez-Pozo JÁ, Latorre-Fuentes JM, Salazar-Nievas MC, Alejandro ML, Arias-Santiago S. Sleep quality as a predictor of quality-of-life and emotional status impairment in patients with chronic spontaneous urticaria: a cross-sectional study. *Int J Environ Res Public Health.* 2023;20(4):3508. doi:10.3390/ijerph20043508
33. Jerković H, Bešlić I, Ćesić D, Šitum M. The psychosocial burden of urticaria. Rad Hrvatske akademije znanosti i umjetnosti. *Medicinske Znanosti.* 2021;548(56-57):98-103. doi:10.21857/9xn31cogdy
34. Zuberbier T, Abdul Latiff AH, Abuzakouk M, et al. The international EAACI/GA²LEN/EuroGuiDerm/APAAACI guideline for the definition, classification, diagnosis, and management of urticaria. *Allergy.* 2022;77(3):734-766. doi:10.1111/all.15090
35. Zuberbier T, Ensina LF, Giménez-Arnau A, et al. Chronic urticaria: unmet needs, emerging drugs, and new perspectives on personalised treatment. *Lancet.* 2024;404(10450):393-404. doi:10.1016/S0140-6736(24)00852-3
36. Ghazanfar MN, Sørensen JA, Zhang D, Holgersen NK, Vestergaard C, Thomsen SF. Occurrence and risk factors of mental disorders in patients with chronic urticaria. *World Allergy Organ J.* 2023;16(11):100835. doi:10.1016/j.waojou.2023.100835
37. Konstantinou GN, Podder I, Konstantinou G. Mental health interventions in refractory chronic spontaneous urticaria: a call to expand treatment guidelines. *Cureus.* 2025;17(3):e81443. doi:10.7759/cureus.81443
38. Steel Z, Marnane C, Iranpour C, et al. The global prevalence of common mental disorders: a systematic review and meta-analysis 1980-2013. *Int J Epidemiol.* 2014;43(2):476-493. doi:10.1093/ije/dyu038

39. Altemus M, Sarvaiya N, Neill Epperson C. Sex differences in anxiety and depression clinical perspectives. *Front Neuroendocrinol*. 2014;35(3):320-330. doi:10.1016/j.yfrne.2014.05.004
40. Pesce L, van Veen T, Carlier I, et al. Gender differences in outpatients with anxiety disorders: the leiden routine outcome monitoring study. *Epidemiol Psychiatr Sci*. 2016;25(3):278-287. doi:10.1017/S2045796015000414
41. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the hospital anxiety and depression scale. An updated literature review. *J Psychosom Res*. 2002;52(2):69-77. doi:10.1016/s0022-3999(01)00296-3
42. DiMatteo MR, Lepper HS, Croghan TW. Depression is a risk factor for noncompliance with medical treatment: meta-analysis of the effects of anxiety and depression on patient adherence. *Arch Intern Med*. 2000;160(14):2101-2107. doi:10.1001/archinte.160.14.2101
43. Herrmann C. International experiences with the hospital anxiety and depression scale--a review of validation data and clinical results. *J Psychosom Res*. 1997;42(1):17-41. doi:10.1016/s0022-3999(96)00216-4