

Association Between Disease Severity and Symptoms of Anxiety and Depression Among Patients with Chronic Urticaria Attending a Dermatology Outpatient Department: A Cross-Sectional Study

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Abstract

Background: Chronic urticaria is a recurring skin condition marked by itchy wheals, angioedema, or both, lasting for more than six weeks. Its unpredictable, relapsing course keeps patients in a state of near-constant distress, and a growing body of work links it to anxiety and depression. Yet how closely the emotional burden tracks with the clinical activity of the disease is still not well described in Indian outpatient settings.

Objectives: To estimate the proportion of patients with chronic urticaria who screen positive for anxiety and depression, and to examine whether these symptoms rise with increasing disease severity.

Methodology: This was a hospital-based cross-sectional study of 150 adults with chronic urticaria attending the dermatology outpatient department of GS Medical College & Hospital, Pilkhuwa, between January and June 2022. Disease severity was graded with the weekly Urticaria Activity Score (UAS7). Anxiety and depression were screened using the Hospital Anxiety and Depression Scale (HADS), with a subscale score of 8 or more taken as a positive screen. Associations were tested with the chi-square test and Spearman correlation using SPSS version 25.

Results: Of the 150 patients, 92 (61.3%) were women and the mean age was 34.8 (SD 11.2) years. A positive screen for anxiety was found in 68 patients (45.3%) and for depression in 58 patients (38.7%). The proportion screening positive climbed steadily with severity: anxiety was present in 22.7% of the mild group, 43.8% of the moderate group and 71.4% of the severe group ($p < 0.001$). Depression followed the same pattern (18.2%, 37.5% and 61.9%; $p < 0.001$). UAS7 correlated positively with both HADS-A ($r = 0.46$) and HADS-D ($r = 0.41$), both $p < 0.001$.

Conclusion: Anxiety and depression were common in this outpatient population and became more frequent as urticaria worsened. Screening for mental health at the dermatology clinic, especially for patients with severe disease, would help catch distress that might otherwise go unnoticed.

Keywords: chronic urticaria; anxiety; depression; Urticaria Activity Score; Hospital Anxiety and Depression Scale; dermatology outpatient.

1. Introduction

Chronic urticaria is defined as the recurrence of itchy wheals, angioedema, or both, for at least six weeks [1]. The wheals come and go, often daily, and each one usually fades within a day only to be replaced by another. Most cases are spontaneous, meaning no external trigger can be pinned down, and the disease can persist for years before it settles. Around one in every hundred people is thought to be affected at some point, and in India, where allergic skin disease is widespread, chronic urticaria is a frequent reason for a dermatology visit [1,2]. A nationwide Italian study put the point prevalence of chronic spontaneous urticaria at roughly 0.02 to 0.4 percent of the population at any given time, though hospital-based figures tend to run higher because symptomatic patients are the ones who seek care [3].

The itching, the visible hives and the broken sleep all take a toll that goes well beyond the skin. A meta-analysis of observational studies found that close to a third of patients with chronic urticaria carry at least one psychiatric diagnosis, with anxiety and depression heading the list [4]. Staubach and colleagues showed that quality of life in these patients is not driven by the rash alone but is shaped strongly by whether a psychiatric condition sits alongside it [5]. In other words, two patients with similar-looking skin can suffer very differently, and the difference often lies in their mental state.

What is less settled is how tightly the emotional burden follows the activity of the disease itself. If a patient's hives flare, does their anxiety flare with them? An Indian study from a tertiary centre reported that depression and anxiety scores rose alongside the urticaria activity score, which hints at a dose-response link [6]. Still, most of the evidence comes from

outside India, and data from smaller teaching hospitals in northern India remain thin. GS Medical College & Hospital serves a largely semi-urban and rural population in the Pilkhuwa region of Uttar Pradesh, a group that is rarely represented in this literature. We carried out this study to measure how many of our chronic urticaria patients screen positive for anxiety and depression, and to see whether that burden grows as the disease becomes more severe.

2. Review of Literature

The link between chronic urticaria and psychological distress has been reported for decades, but the strength of that link varies with the setting and the tools used. Engin and colleagues compared 73 patients with chronic idiopathic urticaria against healthy controls and found significantly higher depression and anxiety scores and poorer quality of life in the patient group [7]. Working with a structured psychiatric interview, Uguz and colleagues diagnosed an Axis I or Axis II disorder in a large share of urticaria patients, and those with a diagnosis had markedly worse quality of life [8]. Memet and colleagues, comparing chronic spontaneous urticaria patients with and without comorbid depression, found that disease activity was higher in those who were depressed and rose in step with the severity of their depressive symptoms [9].

Several groups have looked specifically at whether distress tracks disease activity. Choi and colleagues, studying Korean patients, found that anxiety, depression and stress were all elevated and moved with symptom burden [10]. Staubach and colleagues, in a separate cohort, documented a high prevalence of mental disorders and emotional distress that was worse when urticaria was poorly controlled [11]. Within India, Bangera and colleagues used the Hamilton rating scales and found moderate to severe depression in 70 percent and anxiety in 46 percent of chronic urticaria patients, both far above their control group [12]. Gowda and Athani, in a community medicine study from Bengaluru, reported meaningful rates of anxiety and depression alongside impaired quality of life in patients attending an allergy clinic [13].

The direction of the relationship is still argued over. Some authors treat stress as a trigger that worsens urticaria, pointing to case-control work linking insomnia and stress to disease onset [14]. Others read the arrow the other way, suggesting the relentless disease drives the low mood. Chung and colleagues added a further layer by showing that posttraumatic stress features and certain personality traits cluster in these patients [15]. Our study does not try to resolve cause and effect. It asks a narrower and more practical question: within a single outpatient population, does the proportion of patients with anxiety and depression rise as their measured disease severity rises?

3. Objectives

Primary objective: To assess the association between chronic urticaria disease severity, graded by the weekly Urticaria Activity Score, and the presence of anxiety and depression symptoms measured by the Hospital Anxiety and Depression Scale.

Secondary objectives:

- To estimate the proportion of patients screening positive for anxiety and for depression in the study population.
- To describe the sociodemographic and clinical profile of chronic urticaria patients attending the dermatology outpatient department.
- To examine the correlation between UAS7 scores and HADS anxiety and depression subscale scores.

4. Methodology

Study design and setting

This was a hospital-based, observational, cross-sectional study conducted in the Department of Dermatology, Venereology and Leprosy at GS Medical College & Hospital, Duhri, Pilkhuwa, Uttar Pradesh. Data were collected over six months, from January 2022 to June 2022.

Study population and sample size

The target population was adults aged 18 years and above with a clinical diagnosis of chronic urticaria attending the outpatient department. The sample size was calculated using the standard formula for a single proportion, $n = Z^2pq/d^2$. Taking the expected proportion of anxiety or depression among chronic urticaria patients as 40% ($p = 0.40$, $q = 0.60$) based on earlier work [4,13], with a 95% confidence level ($Z = 1.96$) and an absolute precision of 8% ($d = 0.08$), the required sample worked out to 144. Allowing for incomplete responses, we enrolled 150 patients by consecutive sampling.

Data collection tools

A pre-tested, structured proforma captured age, sex, residence, education, occupation, disease duration and the presence of angioedema. Disease severity was graded with the weekly Urticaria Activity Score (UAS7), which sums a daily wheal

count and an itch intensity rating over seven consecutive days to give a total from 0 to 42. Scores of 7 to 15 were taken as mild, 16 to 27 as moderate and 28 to 42 as severe disease [16]. The UAS7 is the guideline-recommended reference standard for urticaria activity and has good reliability and internal consistency [16].

Anxiety and depression were screened with the Hospital Anxiety and Depression Scale, a 14-item self-report questionnaire with a 7-item anxiety subscale and a 7-item depression subscale, each scored from 0 to 21 [17]. The scale deliberately leaves out somatic items such as fatigue and insomnia so that physical illness does not inflate the score, which makes it well suited to a dermatology clinic. A subscale score of 0 to 7 was read as normal, 8 to 10 as borderline and 11 or above as a probable case; a cut-off of 8 or more was used to flag a positive screen [17,18]. The instrument was administered in the language the patient was comfortable with, and its validity across clinical and community settings is well established [18,19]. The tool was pilot-tested on 15 patients who were not included in the final analysis.

Statistical analysis

Data were entered in Microsoft Excel and analysed with SPSS version 25. Categorical variables are reported as frequencies and percentages, and continuous variables as mean and standard deviation. The association between disease severity and the presence of anxiety or depression was tested with the chi-square test. The relationship between UAS7 scores and HADS subscale scores was assessed with the Spearman rank correlation. A p-value below 0.05 was treated as statistically significant.

Ethical considerations

Approval was obtained from the Institutional Ethics Committee of GS Medical College & Hospital before the study began. Every participant gave written informed consent after the purpose of the study was explained. Participation was voluntary, records were kept confidential and no identifying information was collected. Patients who screened positive for significant anxiety or depression were referred to the psychiatry department for further assessment.

5. Inclusion and Exclusion Criteria

Inclusion criteria:

- Adults aged 18 years and above.
- Clinically diagnosed chronic urticaria of at least six weeks' duration.
- Willing to give written informed consent.

Exclusion criteria:

- A pre-existing psychiatric illness or current use of psychotropic medication.
- Acute urticaria, urticarial vasculitis or a purely physical (inducible) urticaria without a spontaneous component.
- Pregnant or lactating women, and patients with a serious systemic, malignant or neurological illness that could independently affect mood.
- Incomplete questionnaires.

6. Results and Analysis

A total of 150 patients completed the study. Women outnumbered men, and most patients were young adults. The sociodemographic profile is shown in Table 1.

Characteristic	Frequency (n)	Percentage (%)
Age 18-30 years	62	41.3
Age 31-40 years	48	32.0
Age 41-50 years	26	17.3
Age above 50 years	14	9.3
Female	92	61.3
Male	58	38.7
Rural residence	84	56.0
Urban residence	66	44.0
Education up to secondary	70	46.7
Higher secondary and above	80	53.3

Table 1. Sociodemographic profile of the study participants (n = 150). Mean age 34.8 (SD 11.2) years.

Disease duration ranged from about six months to several years. Just over half the patients had been symptomatic for a year or less, and angioedema accompanied the wheals in a little over a quarter of cases. On the UAS7, moderate disease was the largest group. The clinical profile and severity distribution appear in Table 2.

Disease characteristic	Frequency (n)	Percentage (%)
Duration 6-12 months	84	56.0
Duration above 12 months	66	44.0
Angioedema present	39	26.0
Mild disease (UAS7 7-15)	44	29.3
Moderate disease (UAS7 16-27)	64	42.7
Severe disease (UAS7 28-42)	42	28.0

Table 2. Clinical characteristics and disease severity by UAS7 (n = 150).

On the HADS, a positive screen for anxiety was more common than for depression. Anxiety reached the caseness threshold in 68 patients (45.3%) and depression in 58 (38.7%). The full breakdown across normal, borderline and abnormal bands is given in Table 3.

HADS band	Anxiety n (%)	Depression n (%)
Normal (0-7)	82 (54.7)	92 (61.3)
Borderline (8-10)	34 (22.7)	31 (20.7)
Abnormal (11-21)	34 (22.7)	27 (18.0)
Positive screen (≥ 8)	68 (45.3)	58 (38.7)

Table 3. Distribution of anxiety and depression by HADS category (n = 150).

The central question was whether this distress tracked disease severity, and it did. The share of patients screening positive rose sharply from the mild group to the severe group for both anxiety and depression, and both associations were significant on the chi-square test (Table 4). Figure 1 shows the same pattern visually.

Severity (UAS7)	Anxiety +	Depression +	Total (n)	p*
Mild (7-15)	10 (22.7%)	8 (18.2%)	44	
Moderate (16-27)	28 (43.8%)	24 (37.5%)	64	
Severe (28-42)	30 (71.4%)	26 (61.9%)	42	
Total	68 (45.3%)	58 (38.7%)	150	<0.001

Table 4. Association of disease severity with anxiety and depression. *Chi-square test; $p < 0.001$ for both anxiety and depression across severity groups.

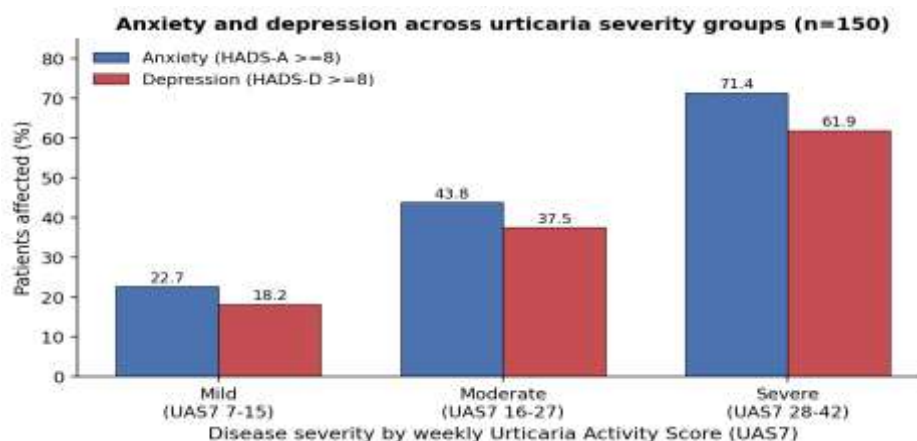


Figure 1. Proportion of patients screening positive for anxiety and depression across the three severity groups.

The correlation analysis pointed the same way. UAS7 showed a moderate positive correlation with the HADS anxiety subscale (Spearman $r = 0.46$, $p < 0.001$) and a slightly weaker but still significant correlation with the depression subscale ($r = 0.41$, $p < 0.001$). Patients with severe disease were roughly three to four times more likely to screen positive for anxiety than those with mild disease. Anxiety consistently outran depression at every level of severity, a gap that showed up in the raw counts as well as the percentages.

7. Discussion and Interpretation

Our two main findings are straightforward. First, anxiety and depression were common in this outpatient group, affecting roughly 45 and 39 percent of patients. Second, both became steadily more frequent as urticaria grew more severe. Neither result is surprising on its own, but seeing them together in a single semi-urban north Indian clinic adds a data point that has been missing from the literature.

The prevalence figures sit comfortably within the range other groups have reported. The meta-analysis by Konstantinou and Konstantinou concluded that about one in three chronic urticaria patients has a psychiatric comorbidity, and studies using screening scales rather than formal interviews tend to report higher numbers, as we did [4]. Bangera and colleagues, working in India with the Hamilton scales, found anxiety in 46 percent and depression in 70 percent of their patients [12]. Our depression rate was lower than theirs, which may reflect the different instrument, the exclusion of patients already on psychotropic medication, or simply a different case mix. Gowda and Athani's Bengaluru cohort and Memet and colleagues' Turkish series both describe the same broad picture of substantial hidden distress in urticaria clinics [9,13].

The more useful finding is the gradient. Rani and colleagues, in a north Indian tertiary study, reported that depression and anxiety scores rose with the urticaria activity score, and our data reproduce that dose-response shape in a smaller, less specialised setting [6]. Choi and colleagues saw the same coupling of symptom burden and distress in Korean patients [10], and Staubach and colleagues found emotional distress worse in poorly controlled disease [11]. When more than seven in ten of our severe patients screened positive for anxiety, against roughly one in five of the mild group, it becomes hard to treat the mind and the skin as separate problems.

Why the two travel together is still open. One reading is that unrelenting itch, disturbed sleep and the unpredictability of the next flare wear a person down over time, and the psychological determinants of quality of life documented by Staubach and colleagues support that view [5]. Another is that stress and heightened emotional arousal lower the threshold for mast cell activation, so that a distressed patient flares more easily; the case-control work of Yang and colleagues on stress and insomnia fits this direction [14]. The relationship is probably a loop rather than a one-way street. Personality and trauma factors may feed into it too, as Chung and colleagues suggested [15]. Anxiety outweighing depression, which we saw at every severity band, echoes reports where the immediate, alarm-like quality of anxiety maps more naturally onto an itchy, visible, come-and-go condition than the slower weight of depression [7,19,21,22].

The practical message is about screening. Dermatologists are not usually looking for mood disorders during a busy outpatient session, and a self-report tool like the HADS is quick, avoids somatic items that a skin patient would score highly anyway, and flags the people who need a closer look [17,18]. Guidance on urticaria increasingly frames quality of life and mental health as part of routine assessment rather than an afterthought [2,20,23], and disease-specific quality of life tools such as the CU-Q2oL were built on the same recognition [24]. A short mental health screen for patients with moderate to severe disease would be a low-cost addition to the clinic. The strengths of this study are its use of validated, guideline-endorsed instruments, a prospectively calculated sample and a population that rarely appears in published work. Findings from the World Allergy Organization's quality of life assessments and other cross-sectional series broadly agree with the direction we report [25].

8. Conclusion

Anxiety and depression were common among patients with chronic urticaria attending our dermatology outpatient department, and both grew more frequent as the disease became more severe. Close to half of all patients, and more than seven in ten of those with severe disease, screened positive for anxiety. The pattern makes a strong case for treating chronic urticaria as more than a skin problem, particularly in teaching hospitals serving semi-urban and rural populations where mental health support is often out of reach. A brief, validated screen such as the HADS, offered to patients with moderate to severe disease and backed by a clear referral path to psychiatry, could pick up distress early and improve overall care. For patients around Pilkhuwa and similar parts of Uttar Pradesh, folding this simple step into the routine urticaria visit is both feasible and worthwhile.

9. Limitations of the Study

- The cross-sectional design captures a single moment, so it can show that severity and distress occur together but cannot say which comes first.

- Data came from one teaching hospital, which limits how far the results extend to other regions or to the wider community.
- The HADS is a screening tool, not a diagnostic interview, so a positive screen indicates probable rather than confirmed anxiety or depression.
- Self-report can be swayed by mood on the day and by how freely a patient discusses emotional symptoms in a clinic setting.
- Excluding patients already on psychotropic medication may have removed some of the most affected individuals and nudged the prevalence downward. Longitudinal, multi-centre studies with formal psychiatric assessment would help clarify the direction of the relationship.

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