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Agrarian Distress, Socioeconomic Precarity, and the Somatic Idiom of Distress: An Explanatory Sequential Mixed-Methods Examination of Anxiety Disorders in Rural Bundelkhand

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ABSTRACT

Anxiety disorders represent a severe public health challenge, yet their epidemiological and phenomenological profiles remain heavily biased toward urban and high-income clinical populations. In rural agrarian regions of the Global South, the intersection of chronic ecological adversity, informal debt cycles, and culturally embedded idioms of distress remains critically underexplored. This study investigated the etiological correlates, prevalence, and phenomenological presentation of anxiety disorders in Mahoba district, situated within the drought-prone Bundelkhand region of Uttar Pradesh, India. Employing an explanatory sequential mixed-methods design (QUAN -> qual), Phase 1 surveyed a multistage stratified random sample of N = 412 adult community residents using psychometrically validated, interviewer-assisted Hindi and Bundeli adaptations of the Generalized Anxiety Disorder 7-item scale (GAD-7), Hamilton Anxiety Rating Scale (HAM-A), and Social Phobia Inventory (SPIN). Phase 2 gathered in-depth semi-structured qualitative narratives from purposively sampled patient interviewees (n = 19) and clinician key informants (n = 8), analyzed through Braun and Clarke's six-phase reflexive thematic analysis. Quantitative findings revealed a high screening-positive rate: 68.0% (n = 280) met clinical cut-offs for generalized anxiety (GAD-7 >= 10; sample M = 11.64, SD = 4.38), with 28.6% presenting with severe symptoms. Bivariate analyses demonstrated that household agricultural indebtedness (r = .382, p < .001; Cohen's d = 0.86) and seasonal male labor migration (t(410) = 6.12, p < .001, d = 0.63) served as the primary environmental engines of anxiety severity. Clinician-rated HAM-A scores revealed a pronounced predominance of somatic over psychic anxiety (M = 11.38 vs. M = 10.14, t(411) = 6.82, p < .001, d = 0.33). In qualitative synthesis, distress was universally articulated via visceral bodily idioms ('dil baithna', 'ghabrahat', 'chaati mein jakdan') rather than cognitive worry. Anxiety in rural Bundelkhand represents an embodied bio-ecological response to structural precarity, demonstrating that primary care screening must pivot from Western cognitive checklists to somatic-first diagnostic frameworks linked to rural economic protection.

Keywords: *Generalized Anxiety Disorder; Rural Mental Health; Agrarian Indebtedness; Somatization; Mixed-Methods; GAD-7; Bundelkhand.*

1. Introduction and Background

Fear and anxiety are universal human affective responses that alert individuals to threat and mobilize defensive behaviors. In clinical psychiatry, these states are distinguished from transient situational stress when apprehension becomes persistent, uncontrollable, and severely impairs occupational, domestic, and social functioning (American Psychiatric Association [APA], 2013). Globally, anxiety disorders—encompassing Generalized Anxiety Disorder (GAD), Panic Disorder, Social Anxiety Disorder (SAD), and Specific Phobias—constitute the most prevalent class of psychiatric illness, affecting approximately 264 million individuals and representing a primary driver of disability-adjusted life years (DALYs) (World Health Organization [WHO], 2017; Baxter et al., 2014).

Despite this immense burden, global mental health research displays an acute geographic asymmetry. Theoretical and epidemiological frameworks have been constructed almost exclusively within high-income Western settings or metropolitan clinical centers in the Global South, bypassing rural agrarian populations (Saxena et al., 2007; Stein et al., 2017). In India, where over 65% of the population resides in rural areas (Census of India, 2011), the National Mental Health Survey (NMHS 2015–16) estimated an overall anxiety prevalence of 2.57% to 3.50% (Gururaj et al., 2016; Manjunatha et al., 2022). However, national epidemiological aggregates mask severe localized pockets of vulnerability shaped by ecological distress, agrarian failure, and fragile healthcare infrastructure (Patel et al., 2016).

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Mahoba district, located in the Bundelkhand region of southern Uttar Pradesh, represents an archetype of rural vulnerability. With a population of 875,958 and a literacy rate of 56.3% (Census of India, 2011), Mahoba faces chronic monsoon deficits, recurrent drought, and groundwater depletion. Smallholder cultivators and landless laborers are trapped in debt cycles with informal moneylenders charging 3% to 5% monthly interest. Widespread seasonal male out-migration forces women and the elderly to manage fragile households under patriarchal constraints (Kermode et al., 2009; Kumar et al., 2020). Moreover, public mental health infrastructure is virtually absent: zero clinical psychologists and only a periodic visiting psychiatrist serve the entire district (Premdas, 2026). Drawing from the doctoral dissertation of Premdas (2026), this paper examines the etiological determinants, clinical severity, and somatic phenomenology of anxiety in Mahoba.

2. Theoretical Framework and Literature Review

Anxiety etiology is best understood through an integrative biopsychosocial framework (Craske et al., 2017; Bandelow & Michaelis, 2015). Twin studies indicate 30% to 40% heritability, with polygenic risk altering central monoaminergic and GABAergic neurotransmission (Hettema et al., 2001; Kessler et al., 2005b). Neurobiologically, anxiety reflects hyperresponsiveness in amygdalar and anterior insular circuits paired with diminished regulatory control from the ventromedial prefrontal cortex (Etkin & Wager, 2007). In resource-depleted environments, chronic stress causes allostatic overload via sustained activation of the hypothalamic-pituitary-adrenal (HPA) axis, elevating circulating cortisol and sensitizing fear pathways (Craske et al., 2017).

In agrarian settings, neurobiological reactivity is continually triggered by real socioeconomic threats: crop ruin, livestock loss, and creditor intimidation are tangible existential hazards rather than irrational cognitive misappraisals (Clark & Beck, 2010; Mowrer, 1960). Furthermore, standard psychiatric classification systems (DSM-5 and ICD-11) presuppose a Western psychological vocabulary centered on introspective worry (APA, 2013; WHO, 2019). Anthropological psychiatry demonstrates that rural South Asian communities embody emotional suffering through somatic idioms of distress (Kleinman, 1988; Kermode et al., 2009). Because mental illness attracts severe moral stigma and threatens marriage prospects, somatic symptoms (palpitations, bodily burning, gastric distress) serve as culturally sanctioned expressions of distress that preserve social honor (Shidhaye & Kermode, 2013; Kumar et al., 2020).

3. Research Methodology

This study employed an explanatory sequential mixed-methods design (QUAN -> qual; Creswell & Plano Clark, 2018; Ivankova et al., 2006) grounded in pragmatism (Bryman, 2006). In Phase 1, a multistage stratified random sample of N = 412 adult residents across rural tehsils (Charkhari, Kabrai, Kulpahar, Panwari) and peri-urban centers was surveyed via primary health centers, community health centers, and village screening camps (Premdas, 2026). The sample matched Census of India (2011) benchmarks: 79.1% rural (vs. 78.8% census; Chi-square = 0.038, p = .845, ns); 68.7% agrarian workforce dependence (vs. 71.4% census; Chi-square = 1.340, p = .247, ns); and 24.5% Scheduled Caste representation (vs. 25.2% census; Chi-square = 0.096, p = .756, ns). The cohort comprised 51.9% females and 48.1% males (mean age 37.4 +/- 11.8 years). Severe poverty (< INR 8,000/month) characterized 55.3% of households, and 64.3% reported active agricultural debt.

Standardized instruments were administered via structured interviewer-assisted Hindi and Bundeli protocols: the GAD-7 (Spitzer et al., 2006; Kroenke et al., 2007; alpha = .874; cut-off >= 10); the clinician-administered HAM-A (Hamilton, 1959; alpha = .891); the Social Phobia Inventory (SPIN; Connor et al., 2000; alpha = .882; cut-off >= 19); and a Sociodemographic and Stressor Inventory. Phase 2 gathered qualitative narratives from 19 purposively sampled patients (P-01 to P-19) and 8 clinician key informants (C-01 to C-08) using maximum variation sampling (Patton, 2002; Onwuegbuzie & Collins, 2007). Transcripts were analyzed in NVivo 12 using reflexive thematic analysis (Braun & Clarke, 2006; Cohen's kappa = .84; Guest et al., 2006). Ethical approval was granted by P.K. University under ICMR (2017) and Declaration of Helsinki (WMA, 2013) protocols.

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4. Quantitative Results

Across the cohort (N = 412), the mean GAD-7 score was 11.64 (SD = 4.38). Applying the validated cut-off of GAD-7 >= 10, 68.0% of participants (n = 280) screened positive for clinically significant generalized anxiety: 6.8% minimal (scores 0–4), 25.2% mild (scores 5–9), 39.3% moderate (scores 10–14), and 28.6% severe (scores 15–21). The mean clinician-administered HAM-A score was 21.52 (SD = 6.84). Crucially, paired-samples t-testing confirmed that the HAM-A Somatic Anxiety subscale mean (M = 11.38, SD = 3.86) was significantly higher than the Psychic Anxiety subscale mean (M = 10.14, SD = 3.62), t(411) = 6.82, p < .001, Cohen's d = 0.33 (Table 1). Somatic symptoms dominated the clinical picture.

Table 1: Descriptive Statistics and Psychometric Properties of Severity Instruments (N = 412)

Assessment Instrument	Items / Scale	Mean (M)	Std. Dev. (SD)	Observed Range	Cronbach's Alpha (a)
GAD-7 (Total Scale)	7 items (0–3)	11.64	4.38	3.00 – 21.00	.874
HAM-A (Total Scale)	14 items (0–4)	21.52	6.84	6.00 – 42.00	.891
* HAM-A Psychic Subscale	7 items (0–4)	10.14	3.62	2.00 – 21.00	.828
* HAM-A Somatic Subscale	7 items (0–4)	11.38	3.86	3.00 – 22.00	.846
SPIN (Total Scale)	17 items (0–4)	24.76	9.82	5.00 – 58.00	.882

Diagnostic overlap was extensive: Pure GAD accounted for 34.5% (n = 142), Combined GAD and Social Anxiety Disorder for 28.6% (n = 118), Panic Disorder for 14.1% (n = 58), Pure Social Anxiety for 11.2% (n = 46), and Specific Phobias / Somatic Mixed States for 11.7% (n = 48). Patients with comorbid GAD/SAD exhibited the highest symptom severity (GAD-7 M = 14.86, SD = 3.45; HAM-A M = 26.12, SD = 5.80) and greatest functional impairment (M = 4.15/5.00, SD = 0.68) compared to pure GAD (F(4, 407) = 48.65, p < .001).

Table 2: Bivariate Associations Between Candidate Etiological Factors and GAD-7 Severity (N = 412)

Etiological Variable	Measurement Level	Statistical Test / Coeff.	p-value	Effect Size (r / d / eta2)
Household Indebtedness	Binary (Debt vs Free)	t(410) = 8.35	p < .001	Cohen's d = 0.86 (Large)
Indebtedness Magnitude (INR)	Continuous (Log)	Pearson r = .382	p < .001	r = .38 (Moderate-High)
Seasonal Out-Migration	Binary (Yes vs No)	t(410) = 6.12	p < .001	Cohen's d = 0.63 (Moderate)
Family Conflict / Domestic	Ordinal (1–5 Likert)	Spearman rho =	p < .001	rho = .34 (Moderate)

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Strain		.341		
Educational Attainment	Continuous Years	Pearson r = -.274	p < .001	r = -.27 (Inverse / Protective)
Landholding Size (Acres)	Continuous (Agrarian)	Pearson r = -.215	p < .001	r = -.21 (Inverse / Protective)
Household Size (Co-residents)	Continuous Count	Pearson r = -.142	p = .004	r = -.14 (Modest Protective)
Biological Gender	Binary (Female vs Male)	t(410) = 4.13	p < .001	Cohen's d = 0.41 (F M=12.48 vs M 10.73)
Family History of Anxiety/Mood	Binary (1st degree)	t(410) = 3.65	p < .001	Cohen's d = 0.38 (Small-Moderate)
Caste Category (Gen/OBC/SC-ST)	Nominal (3 groups)	F(2, 409) = 5.28	p = .005	eta2 = .025 (SC-ST M=12.52)

Bivariate analyses confirmed that agrarian economic stressors were the primary correlates of anxiety severity (Table 2). Household indebtedness displayed a large statistical effect: indebted participants exhibited a mean GAD-7 score of 12.82 (SD = 4.10) versus 9.51 (SD = 4.18) in debt-free households ($t(410) = 8.35$, $p < .001$, Cohen's $d = 0.86$; log-debt correlation $r = .382$, $p < .001$). Seasonal male migration was associated with significantly elevated anxiety ($M = 13.24$ vs. 10.79, $t(410) = 6.12$, $p < .001$, $d = 0.63$). Landless casual laborers reported higher anxiety than landowning farmers ($M = 13.10$ vs. 11.12, $t = 3.92$, $p < .001$). Formal education was protective ($r = -.274$, $p < .001$), while family conflict correlated positively with anxiety (rho = .341, $p < .001$). Debt correlation was significantly stronger in comorbid GAD/SAD ($r = .462$, $p < .001$) than in pure GAD ($r = .284$, $p < .001$), Fisher's $z = 1.98$, $p = .047$, confirming that financial insolvency interacts with fear of community humiliation.

5. Qualitative Findings: The Lived Texture of Distress

Thematic analysis revealed that rural patients experienced and articulated distress almost exclusively through bodily metaphors rather than cognitive worry. Local idioms included 'ghabrahat' (visceral fluttering), 'dil baithna' (heart sinking), 'chaati mein jakdan' (chest tightening), and 'dimag mein bojh' (heavy compressive load on the brain). Cognitive rumination was rarely volunteered unprompted.

> *"When it comes upon me, my chest feels clamped in an iron vise. My heart sinks downward like water in a dried well (dil baith jata hai), and cold sweat drenches my limbs. I tell my family that my heart is failing. How could I say it is 'worry'? What worry does a poor woman have that others do not? It is the body that is breaking down."*
> **— P-01, 34-year-old rural woman, Panwari (Illiterate, Severe GAD)**

> *"It is a burning heaviness in the crown of my head. It feels as if a stone has been tied inside my brain. I cannot breathe, my hands tremble so violently that I drop the sickle in the field. When the doctor asked*

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if I was frightened, I told him: 'I am not afraid of anything; it is my veins that are trembling.'"
— P-06, 52-year-old male cultivator, Jaitpur (Primary School, Heavy Debt)

Clinician C-02 (Medical Officer, CHC Panwari) confirmed that somatic presentations impede clinical recognition: 'In ten years, no rural patient has ever said I feel anxious. They say: Doctor sahib, gas is climbing into my chest and choking my heart, or My head is on fire. If I suggest psychological counseling, they feel insulted, believing I am calling them crazy or failing to diagnose their physical disease.'

Qualitative accounts illuminated the human reality behind the statistical debt correlation (r = .382). Consecutive crop failures, dry borewells, and seasonal male migration create continuous existential dread.

"Every knock on the door at twilight makes my heart hammer in my throat. I think it is the Mahajan coming to seize our cattle. For three years the rain failed. We borrowed eighty thousand rupees to dig a borewell, and it yielded only dust. This anxiety is not in my head; it is dug into our dry fields."
— P-02, 42-year-old male farmer, Kabrai (Primary School, Comorbid GAD/SAD)

"My husband goes to Delhi for eight months to work on construction sites. I am left alone in the village with four small children, an ailing father-in-law, and empty granaries. When night falls, the trembling starts. If a child falls sick, there is no money, no bus, no man in the house. That fear never leaves my chest."
— P-09, 47-year-old rural woman, Panwari (Middle School, Migrant Spouse)

Negative case analysis with educated participants (P-07, university graduate student; P-14, schoolteacher) demonstrated that somatization is not an inherent cultural trait. P-07 stated: 'I knew from the beginning that I was suffering from social anxiety disorder. When I saw the doctor, I described catastrophic anticipatory anxiety before presentations.' When formal education and health literacy are present, psychological articulation replaces somatic cloaking.

6. Mixed-Methods Integration and Discussion

Integrating quantitative metrics and qualitative narratives via a joint display matrix (Table 3; Fetters et al., 2013) demonstrated convergence between statistical data and lived experience. The statistical association between debt and anxiety (r = .382) converged with narratives of predatory moneylenders. The significant elevation of HAM-A somatic over psychic scores (t = 6.82, p < .001) was explained by indigenous idioms of *'dil baithna'* and *'ghabrahat'*.

Table 3: Joint Display Matrix of Etiological Precarity and Symptom Presentation

Domain	Quantitative Finding (N = 412)	Qualitative Narrative (N = 27)	Mixed-Methods Synthesis
Agrarian Precarity	Debt correlates r = .382 (p < .001); Seasonal migration d = 0.63 (p < .001)	Accounts detail terror of moneylenders, dried borewells, and spousal separation	Convergence: Debt functions as an ongoing existential dread of ruin.
Somatic Presentation	HAM-A Somatic M = 11.38 > Psychic M = 10.14 (p < .001); high panic comorbidity	Idioms of 'dil baithna' and chest burning dominate; worry absent unprompted	Expansion: Statistical elevation in somatic scores is explained by cultural idioms.
Diagnostic	Comorbid GAD/SAD	Fear of community dishonor	Expansion: Financial

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Comorbidity	(28.6%) shows highest severity (GAD-7 M=14.86, p < .001)	and credit refusal magnifies social panic	insolvency intersects with village surveillance and social shame.

These findings establish that in rural agrarian communities, anxiety disorders cannot be evaluated through Western cognitive criteria alone. Because bodily labor is the sole economic capital of rural workers, autonomic arousal is immediately experienced as bodily collapse. When primary care screening fails to recognize somatic idioms, patients undergo unnecessary diagnostic tests, entrenching healthcare costs and leaving psychiatric morbidity unaddressed (Kermode et al., 2009; Patel et al., 2016).

7. Policy Recommendations and Conclusion

Three policy interventions are recommended: (1) Develop Somatic-First Screening Protocols for rural PHCs, training medical officers to screen for anxiety when patients present with chronic unexplained palpitations, sleep disruption, or visceral fluttering; (2) Link Mental Health Care to Agrarian Debt Relief, establishing psychosocial support within agricultural extension programs; and (3) Implement Community Psychoeducation led by ASHA workers to destigmatize autonomic anxiety symptoms as treatable physiological conditions.

In conclusion, anxiety in rural Bundelkhand is an embodied bio-ecological response to agrarian precarity. Addressing this burden requires reforming diagnostic practices to accommodate somatic idioms and coupling clinical care with structural economic security.

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