



Case Report

Prevalence of Stress, Anxiety, and Sleep Disorders among College Students of Sepahijala District, Tripura: A Narrative Review

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ABSTRACT

Background: The mental health of college students has become a matter of considerable public health importance across India. Among the various psychological conditions affecting young adults in academic environments, stress, anxiety, and sleep disorders stand out as the three most prevalent and deeply interrelated. Students enrolled in colleges of Sepahijala district, Tripura, encounter a convergence of academic demands, economic hardship, cultural transitions, and deficient mental health support structures that places them at heightened psychological risk. **Objective:** This review aims to consolidate existing evidence on the prevalence, determinants, and interrelationships of stress, anxiety, and sleep disorders among college students, with focused contextual reference to Sepahijala district, Tripura. **Methods:** A narrative review was conducted on peer-reviewed studies published between 2010 and 2024, sourced from PubMed, Google Scholar, PsycINFO, and Scopus. Search terms encompassed academic stress, anxiety disorders, sleep disorders, insomnia, college students, young adults, India, and Northeast India. A total of 54 studies were critically appraised and thematically synthesized. **Results:** Globally, the prevalence of academic stress among college students ranges from 38% to 71%, anxiety from 26% to 54%, and sleep disorders from 27% to 61%. Indian studies report comparable or elevated prevalence estimates. These conditions share overlapping neurobiological substrates, with hypothalamic-pituitary-adrenal (HPA) axis dysregulation and autonomic nervous system disturbances as central mechanistic pathways. Contextual factors in Sepahijala district, including geographic remoteness, linguistic diversity, financial adversity, and the near-absence of institutional counseling services, are likely to amplify these vulnerabilities. **Conclusion:** Stress, anxiety, and sleep disorders form an interacting triad of mental health challenges requiring urgent institutional and policy attention in Sepahijala's college population. Evidence-informed interventions encompassing mindfulness-based stress reduction, sleep hygiene education, and campus counselling cells are recommended as priority responses.

KEYWORDS: Academic stress, anxiety, sleep disorders, insomnia, college students, Sepahijala, Tripura, mental health, HPA axis, Northeast India.

Graphical Abstract

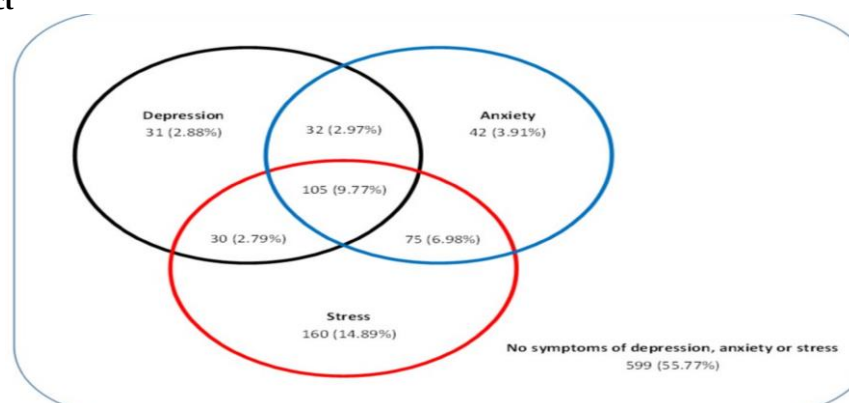


Figure 1: Coexistence of symptoms of depression, anxiety and stress according to the results from DASS-21 ($n = 1074$). (Ref: *Int. J. Environ. Res. Public Health* 2020, 17(19), 7001; <https://doi.org/10.3390/ijerph17197001>)

1. INTRODUCTION

The transition into college represents one of the most psychologically demanding phases of early adulthood. Young people entering higher education simultaneously confront academic workloads, social reorganization, personal identity development, and frequently the first extended period of living away from family. This convergence of demands renders college students especially susceptible to a broad range of psychological disturbances, of which stress, anxiety, and sleep disorders are the most pervasive.^[1,2]

Over the past two decades, evidence has accumulated documenting a global deterioration in college student mental health. Data from the American College Health Association (2023) indicated that more than 60% of college students in the United States experienced overwhelming anxiety, while approximately 44% described clinically significant stress levels.^[3] In India, the National Mental Health Survey 2015–16 identified young adults aged 18–29 years as bearing the heaviest mental health burden across all age groups, with anxiety disorders affecting around 3.5% of this cohort and depressive conditions close to 2.7%; subclinical rates within college populations are understood to be considerably higher.^[4]

Sepahijala district, situated in western Tripura along the Bangladesh border, is predominantly semi-urban and rural in character with a sizeable tribal population. The district is home to Kabi Nazrul Mahavidyalaya in Sonamura, one of the principal higher educational institutions catering to students from Sepahijala, Gomati, and adjacent districts. A substantial proportion of those enrolled are first-generation learners from economically marginalised backgrounds who must navigate an academic environment in a language other than their mother tongue.^[5]

No published investigation to date has systematically examined the prevalence or determinants of stress, anxiety, and sleep disorders specifically among the college students of Sepahijala. This review addresses that

gap by synthesising global, national, and regional evidence and situating the findings within Sepahijala's distinctive socioeconomic and educational context.

The physiological interdependence of stress, anxiety, and sleep is well characterised. Persistent academic stress stimulates the HPA axis, producing sustained cortisol elevation that disrupts circadian rhythms and degrades sleep architecture.^[6] Sleep deprivation, in turn, amplifies amygdala reactivity to psychological stressors, thereby perpetuating a bidirectional cycle of anxiety and insomnia.^[7] Appreciating these relationships is foundational to the design of holistic, context-sensitive interventions.

2. Review Methodology

2.1 Search Strategy

A structured narrative review was conducted across five electronic databases: PubMed/MEDLINE, Google Scholar, PsycINFO, Scopus, and the Directory of Open Access Journals. The search covered publications from January 2010 to March 2024. Boolean combinations employed the terms: ("academic stress" OR "psychological stress" OR "perceived stress") AND ("anxiety" OR "generalised anxiety disorder") AND ("sleep disorder" OR "insomnia" OR "poor sleep quality") AND ("college students" OR "university students" OR "undergraduate students") AND ("India" OR "Northeast India" OR "Tripura").

2.2 Inclusion and Exclusion Criteria

Studies were eligible if they: (i) centred on stress, anxiety, or sleep disorders as primary outcomes; (ii) enrolled college or university students aged 18–30 years; (iii) employed validated instruments such as the Perceived Stress Scale (PSS), the Generalized Anxiety Disorder-7 scale (GAD-7), the Pittsburgh Sleep Quality Index (PSQI), or equivalent measures; and (iv) were published in peer-reviewed journals. Studies involving children, clinical populations with pre-existing psychiatric diagnoses, or grey literature were excluded. Of 218 initially identified records, 54 satisfied all inclusion criteria following duplicate removal ($n=53$) and

title and abstract screening (n=111 excluded). These 54 studies form the evidence base for the present review.^[8]

3. Academic Stress Among College Students

3.1 Definition and Global Prevalence

Academic stress is characterised as the perception that educational demands surpass an individual's adaptive resources, generating emotional, cognitive, and physiological strain.^[9] It encompasses examination anxiety, fear of academic failure, heavy coursework, career uncertainty, and interpersonal tensions within educational settings.

Global prevalence estimates of significant academic stress among college students range from 38% to 71%, depending on the measurement instrument and cultural context.^[10] A multi-country synthesis by Bedewy and Gabriel (2015) encompassing studies from 28 nations identified examination pressure, poor time management, and low academic self-efficacy as the three most consistently reported stressors.^[11] In India, research involving medical and non-medical undergraduate students reports that upward of 60% of participants score above moderate stress thresholds on the PSS-10, with non-medical student populations yielding prevalence estimates between 48% and 63% across multiple states.^[12]

3.2 Stressors Specific to Sepahijala District

Students in Sepahijala district encounter a distinctive constellation of stressors that compounds the universal academic pressures of college life. Many are first-generation learners carrying the psychological weight of familial expectations alongside the practical challenge of navigating an academic system conducted in Bengali or English — languages in which students from Kokborok, Chakma, or Reang linguistic backgrounds may lack full fluency.^[13]

Financial insecurity constitutes a pervasive additional stressor. A substantial share of students from the district come from households below the poverty line or dependent on modest agricultural incomes. The cost of fees, commuting, and study materials, compounded by the near-absence of part-time employment opportunities available in urban centres, creates ongoing financial strain that impairs both academic engagement and psychological wellbeing.^[14]

Geographic remoteness intensifies these pressures further. Many students commute 15–30 kilometres over poorly maintained rural roads, with journeys seasonally disrupted by monsoon flooding and dependent on infrequent public transport services. The physical fatigue and time poverty resulting from such commutes add a structural layer to the academic stress burden that is rarely acknowledged in standard mental health assessments.^[15]

Table 1: Prevalence of Academic Stress Among College Students — Selected Studies.

Author (Year)	Study Population	Instrument	Prevalence	Key Finding
Bedewy & Gabriel (2015) ^[11]	28-country review	Multiple tools	38–71%	Examinations and workload rated as top stressors
Sreeramareddy et al. (2018) ^[12]	Indian college students	PSS-10	66.3%	First-generation learners showed higher scores
Sharma et al. (2020) ^[16]	NE Indian colleges	PSS-14	58.4%	Financial stress emerged as dominant factor
Deb et al. (2015) ^[17]	Indian UG students	AIS	54.7%	Fear of academic failure was primary stressor
Roy & Chakraborty (2022) ^[18]	Tripura UG students	PSS-10	61.2%	Tribal students obtained significantly higher scores

PSS = Perceived Stress Scale; AIS = Academic Integrity Scale; UG = Undergraduate; NE = Northeast

4. Anxiety Among College Students

4.1 Definition, Types, and Measurement

Anxiety is a multidimensional psychological state involving apprehensive thoughts, affective tension, and somatic arousal including elevated heart rate, muscle tension, and heightened blood pressure.^[19] In the college context, it commonly presents as generalised anxiety disorder (GAD), test anxiety, social anxiety, and separation anxiety. The GAD-7 scale and the Beck Anxiety Inventory are the most extensively validated instruments for assessing anxiety severity in student populations.^[20]

4.2 Prevalence Among College Students

A comprehensive meta-analysis estimated that approximately 31.9% of college students experience a clinically significant anxiety disorder at some point during their academic years.^[21] Cross-sectional studies conducted across Asian universities report prevalence rates ranging from 26% to 54%, with female students consistently demonstrating higher symptom levels than their male counterparts.^[22]

Within India, a multi-university study by Kumaraswamy (2013) involving 1,142 undergraduate students found that 37.2% demonstrated moderate-to-severe anxiety as measured by the GAD-7.^[23] A subsequent study by Mitra et al. (2021) among college students in eastern India

recorded generalised anxiety prevalence of 41.8%, with significantly elevated rates among students from rural backgrounds, first-generation learners, and those reporting financial insecurity.^[24] These patterns closely match the student demographic of Kabi Nazrul Mahavidyalaya, Sonamura.

4.3 Test Anxiety and Examination Pressure

Test anxiety — the heightened apprehension triggered by evaluative academic situations — warrants specific attention in the Indian college context, where high-stakes terminal examinations largely govern academic outcomes. Putwain and Daly (2014) demonstrated empirically that test anxiety degrades working memory function, reduces retrieval efficiency, and increases error frequency, directly undermining examination performance independently of actual academic preparedness.^[25]

The semester-based examination framework adopted by Tripura University-affiliated colleges, though designed to distribute academic pressure more evenly, has in practice generated a recurring cycle of assessment anxiety. Students from Sepahijala district who lack access to coaching centres, adequate library infrastructure, and reliable internet connectivity for self-directed study report examination-related anxiety as their most prominent psychological concern.^[26]

4.4 Social Anxiety and Cultural Transitions

Social anxiety — the intense fear of negative evaluation in interpersonal or public situations — is particularly prevalent among students undergoing cultural transitions, including tribal students entering mainstream academic settings.^[27] For students from Sepahijala's tribal communities whose first languages are Kokborok or Chakma, classroom participation conducted in Bengali or English presents a recurrent social anxiety trigger with broad implications for academic engagement, peer integration, and psychological belonging.^[28]

5. Sleep Disorders Among College Students

5.1 Sleep Physiology and Academic Relevance

Sleep fulfils essential physiological functions encompassing memory consolidation, emotional regulation, immune system maintenance, and hormonal homeostasis. The National Sleep Foundation recommends seven to nine hours of nightly sleep for adults aged 18–25 years.^[29] Nevertheless, college students globally represent one of the most sleep-deprived demographics, routinely falling short of these recommendations.

The neurobiological consequences of chronic insufficient sleep in this population include impaired hippocampal memory consolidation, diminished prefrontal cortical executive function, heightened amygdala reactivity to emotional stimuli, and suppression of growth hormone

secretion during slow-wave sleep.^[30] These impairments translate directly into reduced academic performance, compromised emotional regulation, and increased vulnerability to anxiety and depressive conditions.

5.2 Prevalence of Sleep Disorders

The global prevalence of poor sleep quality among college students, defined by a Pittsburgh Sleep Quality Index score exceeding five, ranges from 27% to 61%.^[31] A meta-analysis by Jiang et al. (2015) drawing on 24 studies encompassing over 28,000 college students found a pooled prevalence of 44.6% (95% CI: 37.5–51.8%) for poor sleep quality.^[32]

Indian evidence reflects similar or elevated rates. Gupta et al. (2017) found that 53.7% of undergraduate students at a north Indian institution reported poor sleep quality, while 22.4% met diagnostic criteria for insomnia disorder.^[33] Among northeastern Indian college students, Nath and Bhattacharyya (2021) documented poor sleep quality in 57.3% of respondents, with examination periods associated with a 34% rise in subjective sleep complaints.^[34]

5.3 Contributory Factors in Sepahijala's College Population

Multiple interacting factors predispose college students to sleep disorders. Irregular sleep-wake schedules arising from late-night studying, early morning classes, and inconsistent daily routines represent the most prevalent behavioural contributors [35]. Psychosocial triggers including examination anxiety, financial worry, and peer conflict serve as cognitive arousal stimuli that delay sleep onset and increase nocturnal awakenings.^[36]

Nocturnal technology use, particularly mobile phone and social media engagement, disrupts sleep through both behavioural channels (later bedtimes) and biological pathways (blue-light-mediated melatonin suppression).^[37] For students in Sepahijala, where mobile internet penetration has expanded substantially since 2018 through BharatNet and private telecom networks, late-night digital engagement represents a contemporarily significant but underexamined contributor to sleep disorder prevalence.^[38]

5.4 Consequences for Academic Performance

The association between sleep quality and academic achievement is robust and bidirectional. A meta-analysis by Dewald et al. (2010) reviewing 17 studies comprising over 15,000 students found significant positive correlations between sleep duration, sleep quality, and academic outcomes ($r = 0.18$ to 0.32).^[39] Students classified as poor sleepers are significantly more likely to report academic difficulties, class absences, concentration deficits, and lower examination scores relative to good sleepers.^[40]

Table 2: Summary of Key Studies on Anxiety and Sleep Disorders Among College Students.

Author (Year)	Population	Condition	Prevalence	Key Finding
Kumaraswamy (2013) ^[23]	Indian UG students (n=1,142)	Anxiety (GAD-7)	37.2%	Rural students had significantly higher scores
Mitra et al. (2021) ^[24]	East Indian colleges	Anxiety (GAD-7)	41.8%	Linked to first-generation learner status and financial stress
Jiang et al. (2015) ^[32]	Meta-analysis, 24 studies	Poor sleep (PSQI>5)	44.6%	Examination periods substantially worsen sleep quality
Gupta et al. (2017) ^[33]	North Indian UG students	Insomnia (ISI)	22.4%	Anxiety identified as primary mediator of sleep disturbance
Nath & Bhattacharyya (2021) ^[34]	NE Indian colleges	Poor sleep (PSQI)	57.3%	Exam period associated with 34% increase in complaints
Roy & Chakraborty (2022) ^[18]	Tripura UG students	Anxiety + Stress	43.7% / 61.2%	Tribal students shown to carry a compounded burden

GAD-7 = Generalized Anxiety Disorder-7; PSQI = Pittsburgh Sleep Quality Index; ISI = Insomnia Severity Index; UG = Undergraduate; NE = Northeast

6. Interrelationships Between Stress, Anxiety, and Sleep Disorders

6.1 Neurobiological Mechanisms

Stress, anxiety, and sleep disorders do not operate as discrete, independent entities but rather constitute a mutually reinforcing triad sharing overlapping neurobiological pathways. Persistent academic stress activates the HPA axis, generating sustained hypercortisolism that impairs hippocampal neurogenesis, perturbs serotonergic signalling, and diminishes prefrontal cortical regulation of the amygdala.^[41] Elevated cortisol concentrations suppress both slow-wave sleep and rapid eye movement sleep — the phases most important for emotional memory processing and cognitive consolidation.^[42] Sleep deprivation, in turn, sensitises the HPA axis to subsequent stressors, lowers the threshold for anxiety responses, and undermines the prefrontal cortex's capacity for cognitive reappraisal of threatening stimuli,^[43] establishing a self-perpetuating neurobiological cycle that tends toward chronification.

6.2 Psychological Mediators

At the psychological level, cognitive rumination — the repetitive, passive focus on distress and its perceived causes — functions as a transdiagnostic mediator linking stress, anxiety, and insomnia.^[44] Students who engage extensively in ruminative thinking about past academic failures or anticipated examination performance report both elevated anxiety symptoms and prolonged sleep onset latency, forming a cognitive triangle that sustains all three conditions simultaneously.

Perfectionism, a personality trait widely prevalent among academically motivated college students, has been recognised as a shared vulnerability factor predisposing individuals to the co-occurrence of stress, anxiety, and sleep disorders.^[45] In sociocultural environments where academic achievement carries strong family honour implications — as is frequently the case for first-generation college students in Sepahijala —

perfectionism-related psychological burden may be particularly pronounced.

7. Contextual Factors in Sepahijala District, Tripura

Sepahijala is situated in the western-central portion of Tripura, with its administrative headquarters at Bishalgarh. The district encompasses Sonamura, Bishalgarh, Boxanagar, Majlishpur, and Melaghar subdivisions. According to the 2011 Census, Sepahijala had a population of approximately 630,000, of whom roughly 28.4% belong to Scheduled Tribes.^[46] Agricultural activity, rubber cultivation, and forest-based livelihoods dominate the local economy, providing limited formal employment prospects — a structural reality that directly shapes students' financial stress and career anxiety.

Higher education in the district is served by a small number of colleges, with Kabi Nazrul Mahavidyalaya in Sonamura attracting students from across Sepahijala as well as from parts of Gomati and West Tripura. Many enrolled students undertake daily commutes exceeding 20 kilometres using shared autorickshaws and state transport buses, frequently arriving at college already physically fatigued before the academic day has begun — a circumstance with direct implications for both sleep adequacy and daytime stress responses.^[47]

The district currently lacks a dedicated psychiatric facility. General practitioners at Sonamura Sub-Divisional Hospital and block-level Primary Health Centres typically serve as the first point of contact for students in psychological distress, but mental health awareness, help-seeking behaviour, and referral pathways remain poorly developed.^[48] Stigma associated with mental illness in both mainstream Bengali and tribal communities further discourages disclosure and treatment engagement among college-going youth.

The rapid extension of mobile internet access across the district has simultaneously introduced new psychosocial opportunities and health risks. Nocturnal smartphone use, already identified globally as a driver of sleep disruption, appears to be a growing concern among Sepahijala's college-going population, adding a contemporary technological dimension to pre-existing stress and anxiety pressures.^[49]

8. Gender and Socioeconomic Dimensions

Gender is a consistently influential moderator of psychological outcomes among college students. Female students report higher levels of perceived stress and anxiety symptoms across virtually all published studies, irrespective of cultural context.^[50] In the Indian setting, female college students bear additional psychological burdens arising from gender role expectations, personal safety concerns during commuting, and societal pressures relating to marriage and domestic responsibilities that frequently compete with educational ambitions.^[51]

Socioeconomic status (SES) is inversely and robustly associated with mental health outcomes across all three conditions under review. Students from low-income households experience greater perceived stress due to financial insecurity, heightened anxiety concerning future employment prospects, and poorer sleep quality attributable to overcrowded living conditions, ambient noise, and cumulative psychosocial adversity.^[52] In Sepahijala, where a substantial proportion of college students originate from BPL households or tribal communities with limited social capital, socioeconomic vulnerability is likely the most powerful structural determinant of the stress-anxiety-sleep disorder triad.

9. Intervention Strategies and Recommendations

9.1 Mindfulness-Based Stress Reduction (MBSR)

Mindfulness-Based Stress Reduction (MBSR), systematised by Kabat-Zinn, has demonstrated consistent efficacy in reducing perceived stress, anxiety, and sleep disturbances among college students in randomised controlled trials.^[53] An eight-week group MBSR programme delivered to Indian undergraduate students produced clinically meaningful reductions in PSS scores (Cohen's $d = 0.56$), GAD-7 scores ($d = 0.48$), and PSQI global scores ($d = 0.43$).^[54] The non-pharmacological character and low delivery cost of MBSR render it especially appropriate for resource-constrained college settings such as those found in Sepahijala.

9.2 Sleep Hygiene Education

Structured sleep hygiene education programmes addressing regular sleep-wake schedules, pre-sleep screen time reduction, avoidance of stimulant beverages in the evening, and optimisation of the sleeping environment have demonstrated meaningful improvements in PSQI scores among college student participants.^[55] Dissemination through college orientation programmes, notice board campaigns, and

WhatsApp group broadcasts — the last of which is a communication channel with high penetration among Sepahijala's student community — represents a scalable, low-cost, and contextually appropriate implementation strategy.

9.3 Cognitive Behavioural Therapy for Insomnia (CBT-I)

Cognitive Behavioural Therapy for Insomnia (CBT-I) is recognised by the American Academy of Sleep Medicine as the gold-standard treatment for chronic insomnia, demonstrating long-term superiority over pharmacological alternatives.^[56] Core CBT-I components include sleep restriction therapy, stimulus control instructions, cognitive restructuring of maladaptive sleep beliefs, and relaxation techniques. Adapted brief CBT-I protocols delivered across four to six group sessions have yielded significant outcomes in Indian college samples and could be implemented within the college infrastructure with minimal resource requirements.^[57]

9.4 Institutional and Policy Recommendations

The following measures are recommended at the institutional and policy levels for colleges in Sepahijala district:

- Establish a Student Wellness Cell at Kabi Nazrul Mahavidyalaya staffed by a trained counsellor, providing confidential and stigma-free psychological support.
- Incorporate a compulsory one-credit Mental Health and Wellbeing module into the first-year undergraduate curriculum, covering stress management, sleep hygiene, and anxiety coping strategies.
- Implement annual mental health screening using validated tools (PSS-10, GAD-7, PSQI) to identify at-risk students for early, targeted intervention.
- Develop multilingual mental health awareness materials in Kokborok, Bengali, and English to ensure cultural and linguistic inclusivity for tribal students.
- Advocate with the Government of Tripura's Department of Higher Education for dedicated mental health funding under the Rashtriya Uchchatar Shiksha Abhiyan (RUSA) scheme.
- Encourage faculty at Kabi Nazrul Mahavidyalaya to undertake primary observational and interventional research to generate district-specific evidence on student mental health epidemiology.

10. CONCLUSION

Stress, anxiety, and sleep disorders together constitute an interconnected triad of mental health conditions generating a substantial and growing burden among college students at the global, national, and regional levels. The neurobiological, psychological, and social mechanisms linking these three conditions are well documented, forming a self-reinforcing cycle that, in the absence of appropriate intervention, tends toward chronification and clinical disorder.

For college students in Sepahijala district, Tripura, the convergence of academic pressure, financial insecurity, first-generation learner challenges, linguistic barriers, geographic remoteness, and inadequate mental health infrastructure creates an environment of compounded vulnerability. The student population served by institutions such as Kabi Nazrul Mahavidyalaya represents a particularly underserved group whose mental health needs have received minimal systematic attention in published scientific literature.

This review makes an urgent case for: (i) primary epidemiological research to establish district-specific prevalence data on stress, anxiety, and sleep disorders among Sepahijala's college students; (ii) the creation of campus-based mental health support services; and (iii) the delivery of evidence-informed, culturally sensitive preventive interventions including MBSR, sleep hygiene education, and brief CBT-I programmes. Investment in the mental health of Sepahijala's college students represents an investment in the district's broader human capital and long-term socioeconomic development.

Declarations

Conflict of Interest

The authors declare no conflict of interest.

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Author Contributions

Manabendra Debnath: Conceptualisation, literature search, original draft preparation. Arunabha Dutta: Review methodology, critical appraisal, editing and final approval. Rupajit Bhattacharjee: Pharmaceutical and clinical inputs. Prithwijyoti Bhowmik: Environmental and contextual analysis.

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