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**CLIMATE CHANGE AND STUDENT
MENTAL HEALTH SUPPORT:
A SYSTEMATIC REVIEW OF COUNSELLING SERVICES,
ECO-THERAPY PROGRAMMES, AND CLIMATE-RESPONSIVE
MENTAL HEALTH INTERVENTIONS AND THEIR
EFFECTS ON ANXIETY AND DEPRESSION OUTCOMES
AMONG STUDENTS AT THE UNIVERSITY OF LAGOS, NIGERIA**

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ABSTRACT

University students globally are experiencing worsening mental health outcomes, with anxiety, depression, and emerging climate-related psychological conditions—eco-anxiety, climate grief, and ecological dissociation—forming a growing clinical concern. The University of Lagos (UNILAG), located within a highly climate-vulnerable urban environment in sub-Saharan Africa, serves approximately 60,000 students exposed to escalating flooding, urban heat stress, and sea-level rise. This study examines the adequacy of climate-responsive mental health support services for this population.

The study synthesises four theoretical frameworks: Clayton's (2020) model of climate anxiety psychopathology; Lazarus and Folkman's (1984) transactional stress and coping theory, adapted to Nigerian university contexts by Okafor and Nweke (2019); Antonovsky's (1979, 1987) salutogenic sense of coherence framework; and Ulrich's (1984, 1993) psychophysiological stress recovery theory. These frameworks are used to critically assess UNILAG's counselling services, eco-therapy initiatives, psychoeducational group interventions, and campus-based environmental engagement programmes.

UNILAG's Student Counselling and Health Services Division provides individual counselling primarily targeting generalised anxiety and depression, typically assessed using standardised tools such as the GAD-7, PHQ-9, and Beck Depression Inventory. However, climate-related psychological distress remains both diagnostically under-theorised and institutionally under-addressed. While eco-therapy and nature-based interventions demonstrate clear psychophysiological benefits for stress reduction, their implementation within campus mental health services remains fragmented and non-systematised. Similarly, peer-led psychoeducational programmes addressing climate anxiety and grief show potential for fostering shared meaning-making and psychological agency, but lack formal evaluation and institutional integration. The intersection of academic pressure, financial strain, digital social fragmentation, and direct environmental exposure produces a compounded transactional stress burden that conventional counselling models do not adequately capture or address.

Mental health services should incorporate climate-specific screening tools and intervention protocols that distinguish adaptive from maladaptive climate anxiety responses. Eco-therapy should be institutionalised as a core clinical intervention rather than an optional wellness activity, leveraging Lagos's lagoon and green ecosystems. Peer-based climate grief support groups should be formalised and subjected to longitudinal evaluation. In addition, campus environmental stewardship programmes should be designed to simultaneously promote ecological engagement and psychological restoration of agency. Funding structures must prioritise climate-responsive mental health infrastructure alongside existing counselling provisions.

UNILAG students experience a concentrated climate–mental health burden shaped by Lagos's acute environmental vulnerability. Addressing this requires a shift from predominantly pathogenic models of mental health care toward a salutogenic framework that enhances comprehensibility, manageability, and meaningfulness as core dimensions of resilience. Without such a shift, university mental health services risk remaining misaligned with the lived realities of climate-distressed student populations in Nigeria.

Keywords: eco-anxiety, climate grief, university mental health, salutogenesis, eco-therapy, UNILAG, Nigeria

1.0 INTRODUCTION

The intersection of two escalating crises—the global deterioration in university student mental health and the rapidly emerging climate-related mental health burden—has created an urgent but poorly addressed institutional challenge for higher education systems. While student mental health decline has been widely documented across regions with established surveillance systems, climate-related psychological distress among young adults remains the least clinically prepared-for dimension of this broader crisis. Together, these forces generate a compound mental health burden that is increasingly beyond the scope of conventional university counselling models, particularly in low-resource contexts such as Nigeria.

The University of Lagos (UNILAG) provides a critical case for examining this intersection. Situated within one of sub-Saharan Africa's most climate-vulnerable coastal megacities, its student population is directly exposed to flooding risks, urban heat stress, and environmental instability associated with the Lagos Lagoon and surrounding urban infrastructure. This positioning makes UNILAG a particularly relevant site for analysing how climate exposure interacts with student psychological distress and the adequacy of institutional mental health responses.

Although climate change and mental health has gained recognition in global clinical literature—including reports by the American Psychological Association (2017), the Climate Psychology Alliance (2019), and the Intergovernmental Panel on Climate Change Sixth Assessment Report (2022)—its integration into Nigerian higher education remains minimal. Existing counselling systems in Nigerian federal universities largely follow a reactive, individualised model focused on academic stress and personal crises, with no systematic incorporation of climate anxiety assessment tools, eco-therapeutic interventions, or structured psychoeducational support for climate-re-

lated distress. At UNILAG, this gap is compounded by limited staffing and service capacity relative to a student population of approximately 60,000, further constraining responsiveness to emerging mental health needs.

This review addresses this gap by synthesising four theoretical frameworks to construct an integrated analytical account of climate-related mental health challenges in the UNILAG context. It also draws on international and African evidence on climate-responsive interventions, reinterpreted within Nigerian socio-cultural and institutional conditions. Positioned within a social work perspective, the study frames climate-related distress not only as a clinical concern but also as a manifestation of structural inequality and environmental injustice, requiring both therapeutic and socio-political responses.

The paper proceeds as follows: Section 2 outlines the theoretical frameworks; Section 3 presents the hypothesis; Section 4 describes the methodology; Section 5 presents findings; Section 6 discusses implications; Section 7 concludes with recommendations; and Section 8 addresses limitations.

1.1 Theoretical Framework

Four complementary perspectives address the explanatory requirements for climate-responsive mental health support: the specific phenomenology of climate psychological distress; cognitive appraisal and coping processes; health-generative design principles; and the psychophysiological mechanism of nature-based stress recovery.

1.2 Climate-Specific Psychopathology

Clayton's (2020) framework, elaborated through the validated Climate Anxiety Scale (Clayton & Karazsia, 2020), distinguishes three response patterns demanding differential intervention. Adaptive climate anxiety—functional concern motivating information-seeking and pro-environmental action—benefits

from validation and engagement support. Maladaptive climate anxiety—characterised by rumination, helplessness, and functional impairment meeting diagnostic thresholds for generalised anxiety—requires clinical intervention specifically addressing its climate dimension. Climate grief and ecological mourning—bereavement responses to ecological losses and foreclosed futures—require grief-informed therapeutic approaches beyond conventional anxiety management.

Albrecht's (2003, 2019) concept of solastalgia, the distress of environmental loss in one's home environment, applies directly to UNILAG students experiencing Lagos communities transformed by flooding and coastal erosion. Ogunbode et al. (2019) found 68% of Lagos urban residents reported emotional distress from observed environmental changes, with 18–30-year-olds showing highest climate-related worry rates. The Climate Anxiety Scale's cross-national validation, including sub-Saharan African participants, would enable UNILAG counsellors to distinguish climate-specific from generalised anxiety presentations currently undifferentiated by standard measures like the GAD-7.

1.3 Cognitive Appraisal and Coping

Lazarus and Folkman's (1984) Transactional Model establishes that psychological stress emerges from the transaction between perceived environmental demands and perceived resources, not from stimuli alone. Primary appraisal evaluates event significance; secondary appraisal assesses coping resource adequacy. This two-stage process explains individual variation in climate distress responses.

Ojala (2012, 2016) identified three coping profiles with direct intervention relevance. Problem-focused coping—direct stressor addressing—predicts optimal wellbeing when the stressor is perceived as within individual influence, but produces frustrated helplessness when climate change is conceptualised as beyond

personal agency, which Ojala found dominant among young people. Emotion-focused coping—distraction, denial, avoidance—predicts short-term anxiety reduction at long-term engagement cost, associated with ecological dissociation most refractory once habituated. Meaning-focused coping—reappraising stressors through personally significant values—predicts superior long-term wellbeing for climate change, enabling sustained engagement that psychological health and collective response require.

Okafor and Nweke (2019) established that collectivist coping strategies relying on family, community, and faith networks predicted better outcomes than individualised approaches among Nigerian students. This implies UNILAG services should prioritise group modalities aligned with Nigerian collectivist traditions rather than Western individualised cognitive-behavioural approaches. Adeleye and Adewale (2016) found 74% of UNILAG students had directly experienced significant flooding, and 61% reported home community environmental degradation as significant worry—establishing climate change as proximate personal stressor producing specific symptom profiles requiring targeted treatment.

1.4 Health-Generative Design

Antonovsky's (1979, 1987) Salutogenic Framework redirects attention from pathogenic questions—what causes illness—toward salutogenic questions—what generates health. The Sense of Coherence, its central concept, comprises three components: comprehensibility (cognitive intelligibility of the world); manageability (practical resource availability); and meaningfulness (motivational investment worthiness). Eriksson and Lindström's (2006) systematic review of 458 studies across 32 countries found Sense of Coherence positively correlated with perceived good health in 83% of studies and negatively with depression in 79%—establishing the most replicated psychological health predictor.

For climate-distressed students, comprehensibility is undermined by overwhelming climate science complexity without accessible interpretive frameworks. Manageability is compromised when low personal carbon footprints and limited institutional influence render problem-focused coping futile. Meaningfulness is threatened when ecological losses deplete motivational resources for engagement. Targeted interventions strengthening each component—climate science psychoeducation for comprehensibility, environmental stewardship repertoires for manageability, narrative reflection on ecological values for meaningfulness—constitute the most empirically supported resilience-building approach. Ojala's (2012) finding that meaning-focused coping was the strongest well-being predictor among climate-concerned youth directly translates Antonovsky's meaningfulness component into the climate coping domain.

1.5 Psychophysiological Stress Recovery

Ulrich's (1984, 1993) Psychophysiological Stress Recovery Theory explains nature contact's clinical benefits through direct autonomic nervous system response rather than cognitive engagement. Evolutionary predisposition to resource-rich, threat-reduced environments produces rapid sympathetic down-regulation, parasympathetic activation, and associated cortisol, heart rate, blood pressure, and skin conductance reductions—constituting acute stress recovery's physiological profile. This mechanism operates even when cognitive engagement is impaired by severe anxiety or depression, making it more clinically relevant than attention restoration theories requiring active cognitive appreciation.

Ulrich et al. (1991) found natural environment exposure produced significant physiological recovery from acute laboratory stressors within four to six minutes, achieving near-complete baseline return within fifteen minutes. Bratman et al. (2015) demonstrated that 90-minute nature walks versus urban walks signifi-

cantly reduced subgenual prefrontal cortex activity—the neural marker of depressive rumination. Asante and Agyei-Mensah (2021), in the most comparable African evidence from University of Ghana students, found regular green space users reported significantly lower anxiety and depression scores, with perceived environmental naturalness and aesthetic quality predicting outcome magnitude more strongly than visit frequency.

For UNILAG, the convergence of ecologically significant campus spaces—Lagos Lagoon shoreline, botanical garden, Faculty of Science woodland—with intense urban stressors creates optimal clinical indications for structured nature contact. The proposed Eco-Therapy Programme integrating psychophysiological recovery with meaning-focused coping facilitation addresses both the physiological and psychological dimensions of climate distress in Nigeria's most climate-exposed student population.

1.6 Hypothesis

This study hypothesises that the implementation of a comprehensive Climate-Responsive Mental Health Support Programme at the University of Lagos will produce significant improvements in student mental health outcomes and climate-related coping capacities compared with standard counselling services.

The programme integrates four components: (i) climate-sensitive counselling using validated tools such as the Climate Anxiety Scale, GAD-7, and PHQ-9; (ii) eco-therapy sessions based on structured nature contact within UNILAG's botanical and lagoon environments; (iii) psychoeducational groups focused on climate literacy, meaning-focused coping, and Sense of Coherence development; and (iv) campus environmental engagement activities designed to enhance climate action self-efficacy.

It is hypothesised that, relative to a matched comparison group receiving standard counselling only, participants will demonstrate:

- significantly lower anxiety and depression scores (GAD-7, PHQ-9);
- reduced maladaptive climate anxiety and improved functional coping (Climate Anxiety Scale);
- higher Sense of Coherence scores (comprehensibility, manageability, meaningfulness);
- and increased use of meaning-focused coping strategies.

Sub-hypotheses further propose that:

H1a: Eco-therapy participants will show greater reductions in anxiety and depression symptoms than controls.

H1b: Psychoeducational group participants will show higher Sense of Coherence and greater shift toward meaning-focused coping.

H1c: Climate-sensitive counselling will produce greater improvement in maladaptive climate anxiety than standard counselling.

H1d: Participation in environmental engagement activities will increase climate action self-efficacy and reduce cognitive climate distress.

2.0 METHODOLOGY

2.1 Research Design and Protocol

This systematic review follows the protocol-first methodology consistent with Gough, Oliver, and Thomas (2012) and the PRISMA 2020 reporting standards of Page, McKenzie, Bossuyt, Boutron, Hoffmann, Mulrow, Shamseer, Tetzlaff, Akl, Brennan, Chou, Glanville, Grimshaw, Hrobjartsson, Lalu, Li, Loder, Mayo-Wilson, McDonald, McGuinness, Stewart, Thomas, Tricco, Welch, Whiting, and Moher (2021). The PICO research question was: what is the evidence that climate change-responsive mental health support services, specifically climate-sensitive counselling,

eco-therapy, psychoeducational group programmes, and environmental engagement activities, produce measurable improvements in anxiety and depression outcomes among university students at Nigerian federal universities and comparable sub-Saharan African and Global South higher education institutions, and through what climate anxiety phenomenology, transactional coping, salutogenic, and psychophysiological stress recovery mechanisms do these improvements operate? Population: undergraduate and postgraduate students at Nigerian federal universities and comparable sub-Saharan African and Global South higher education institutions, with particular focus on students in climate-vulnerable urban environments and those presenting with climate-related psychological distress; Intervention: any climate change-responsive mental health support service including climate-sensitive counselling, eco-therapy, psychoeducational group programmes addressing climate anxiety or ecological grief, or environmental engagement activities designed to build climate coping efficacy; Comparison: standard counselling services without climate-specific assessment or intervention components, or matched student populations without access to any systematic mental health support; Outcome: anxiety and depression symptom measures including GAD-7, PHQ-9, State-Trait Anxiety Inventory, and Beck Depression Inventory scores; climate-specific outcome measures including Climate Anxiety Scale and solastalgia assessment; Sense of Coherence scores; and coping strategy distribution measures.

2.2 Search Strategy

A comprehensive search was conducted across nine databases: Scopus, Web of Science, JSTOR, Google Scholar, PubMed, ERIC, ScienceDirect, ProQuest Dissertations and Theses, and the African Journals Online platform. Searches covered publications from 1984, the year of Ulrich's foundational Science paper establishing the psychophysiological mechanism of nature-based stress recovery, through 2024. Boolean

search strings included: climate change AND anxiety AND university students; eco-anxiety AND higher education; climate grief AND mental health; ecological distress AND young people; climate change AND depression AND students; eco-therapy AND anxiety AND clinical; nature-based intervention AND depression; solastalgia AND mental health; climate change AND mental health Africa; university counselling AND climate change; climate anxiety AND Nigeria; Lagos AND climate change AND mental health; eco-anxiety scale AND university; Clayton climate anxiety AND students; Albrecht solastalgia AND mental health; Lazarus Folkman AND climate stress AND coping; Antonovsky salutogenic AND climate; sense of coherence AND university students; Ulrich stress recovery AND nature; eco-therapy AND randomised controlled trial; nature-based therapy AND anxiety AND depression; green space AND mental health AND university; nature contact AND stress AND Africa; university mental health Nigeria; student mental health Nigeria; Adewuya AND Nigerian university AND psychiatric; climate change AND young people AND psychological wellbeing; eco-therapy Africa; campus green space AND mental health; climate action AND anxiety AND self-efficacy; meaning-focused coping AND climate; climate change AND grief AND psychotherapy; environmental identity AND mental health; climate psychology AND developing country; IPCC AND mental health AND youth; climate change AND wellbeing AND sub-Saharan Africa; nature walk AND depression AND experimental; horticultural therapy AND anxiety; forest bathing AND cortisol. Grey literature was retrieved from the American Psychological Association climate change and mental health report, the Climate Psychology Alliance guidance documents, the IPCC Sixth Assessment Report mental health sections, the World Health Organization climate change and health programme documentation, the UNILAG Student Counselling and Health Services Division accessible service documentation, and the Association

for Ecotherapy professional practice guidance.

2.3 Inclusion and Exclusion Criteria

Studies were included if they examined the relationship between any climate change-responsive mental health intervention and anxiety or depression outcomes in a university student or young adult population; evaluated the effectiveness of eco-therapy, nature-based interventions, climate anxiety psychoeducation, or climate-sensitive counselling for improving psychological wellbeing; provided empirical evidence on the prevalence or characteristics of climate anxiety, eco-anxiety, climate grief, or solastalgia in university student or young adult populations; provided empirical or theoretical grounding for the four deployed frameworks; or examined the design, governance, or service delivery dimensions of student mental health services at Nigerian or comparable sub-Saharan African universities. Studies from outside sub-Saharan Africa were included when mechanism evidence was theoretically generalisable to the UNILAG context and African-specific evidence was insufficient. Studies of general anxiety and depression interventions without climate dimensions were included when the nature contact, coping, or salutogenic mechanism evidence was applicable to climate-responsive intervention design. Studies were excluded if they addressed climate change mental health exclusively in adult populations outside the 18 to 35 university student age range, or if not available in English or French.

2.4 Screening and Selection

Records were screened in two stages following automated and manual deduplication, with Stage 1 applying criteria to titles and abstracts with 25 percent independently double-screened, and Stage 2 applying full criteria to all passing records.

STAGE	ACTION	RECORDS
Initial database retrieval	Systematic search across all 9 databases	4,916
After duplicate removal	Automated and manual deduplication	3,274
After title/abstract screening	Applied predefined inclusion criteria	468
After full-text screening	Full retrieval and assessment against all criteria	156
Final included studies	Studies included in thematic synthesis	117

The 117 included studies comprise 81 peer-reviewed journal articles, 16 book chapters and edited volume contributions, 13 reports and clinical guidance documents, and 7 doctoral dissertations. All sources are cited in the master reference list.



2.5 Data Extraction and Quality Appraisal

Data extraction used a standardised template recording study design, geographic and demographic context, the specific climate-responsive or nature-based intervention examined, the mental health outcome measures and their psychometric properties, key findings including effect sizes and follow-up duration where reported, and quality indicators. Quality appraisal employed the Mixed Methods Appraisal Tool version 2018 (Hong, Pluye, Fabregues, Bartlett, Boardman, Cargo, Dagenais, Gagnon, Griffiths, Nicolau, O’Cathain, Rousseau, & Vedel, 2018).

2.6 Analytical Approach

Thematic synthesis followed Thomas and Harden’s (2008) three formally distinct stages: line-by-line inductive coding of all relevant findings; organisation of codes into descriptive themes; and analytical theme generation through theoretical interpretation applying the four frameworks.

3.0 FINDINGS

3.1 Climate Change Mental Health Burden: A Critical Review

The available literature on climate-related psychological distress among Nigerian university students presents significant limitations that constrain direct institutional application. Adewuya and Ola’s (2005) landmark prevalence study at the University of Ibadan established a 12-month psychiatric morbidity rate of 21.3%, with anxiety disorders at 12.4% and depression at 7.8%. However, this study predates climate change’s mainstreaming as a mental health risk factor and contains no assessment of climate-specific symptom dimensions. Its value lies in establishing baseline student mental health burden rather than characterising climate-related presentations. Abiodun’s (2017) multi-institution assessment across five Lagos-area universities, including UNILAG, found

elevated GAD-7 scores (≥ 10) in 28.6% of UNILAG students—higher than Adewuya and Ola’s national benchmark. Yet Abiodun’s instrument, like its predecessor, captures generic anxiety symptomatology without distinguishing climate-specific cognitive content or ecological grief manifestations.

Ogunbode et al.’s (2019) Lagos urban survey provides the most geographically proximate evidence, finding 68% of residents reported climate-related worry, 44% sadness or depression, 39% helplessness, and 29% sleep or concentration impairment. Their 2022 cross-national extension across 32 countries established that direct climate impact experience—flooding, drought, extreme heat—predicted anxiety scores more strongly than demographic or attitudinal variables. However, neither Ogunbode et al. study sampled university students specifically; their Lagos data derive from general adult populations whose occupational, educational, and age profiles differ markedly from the UNILAG student demographic. The 18–30 age bracket overlap, while suggestive, does not permit demographic equivalence claims.

Akinsemolu and Oluwafemi’s (2018) climate vulnerability assessment documented annual flooding affecting approximately 40% of metropolitan Lagos during peak wet season, with the Yaba campus vicinity and adjacent Surulere, Ajegunle, and Costain neighbourhoods among the most affected. Their household economic impact estimates (150,000–800,000 naira annually) establish material stress pathways potentially compounding psychological burden. Yet this study addresses infrastructural and economic vulnerability, not mental health outcomes; any psychological inference requires theoretical bridging rather than empirical demonstration.

These studies collectively demonstrate that: (a) Nigerian university students experience substantial generic anxiety and depression; (b) Lagos residents in climate-vulnerable areas report significant cli-

mate-related psychological distress; and (c) the UNILAG campus and its surrounding student residential zones face acute environmental exposure. What remains empirically unestablished is the intersection of these three domains—whether UNILAG students specifically experience climate-related psychological distress at rates or intensities distinguishable from generic student anxiety, and whether their symptom presentations align with Clayton's (2020) adaptive, maladaptive, or grief-response taxonomies.

The existing counselling infrastructure at Nigerian federal universities, assessed by Aina and Morakinyo (2011), operates at counsellor-to-student ratios of approximately 1:3,000—far exceeding the 1:500 British Association for Counselling and Psychotherapy standard. Service designs reflect conventional reactive models addressing academic stress, examination anxiety, and interpersonal conflict, with no evidence of climate-specific protocols, eco-therapy provision, or climate anxiety psychoeducational groups across any Nigerian federal university. This diagnostic and programmatic gap means that even if climate-specific distress exists at UNILAG, current service architecture lacks capacity to identify or address it.

The critical implication is not that UNILAG students definitively experience elevated climate anxiety requiring immediate specific intervention, but that the convergence of: (a) documented generic mental health burden; (b) documented climate exposure in the campus environment; and (c) absence of climate-sensitive assessment or intervention infrastructure, creates an evidence gap and a service gap whose simultaneous existence warrants systematic investigation. The studies reviewed establish conditions of possibility rather than confirmed prevalence; they identify environmental risk exposure and generic psychological vulnerability without demonstrating their specific intersection at UNILAG. Treating these studies as if they had sampled UNILAG students directly would constitute methodological overreach. Rather, they

collectively justify the research question: whether and how climate-related psychological distress manifests among UNILAG students, and what service design modifications would be required should such manifestation be confirmed.

3.2 The Campus Green Space and Nature Contact Environment at UNILAG

The University of Lagos campus provides a natural environment resource for eco-therapy and stress recovery interventions whose ecological diversity and accessibility, while substantially less than those of campuses located in more rural or less urbanised settings, are sufficient to support the structured nature contact programmes whose therapeutic mechanism Ulrich's (1984, 1993) theory establishes and whose clinical effectiveness the international eco-therapy literature documents. Understanding the specific character of this resource, its ecological content, its accessibility to student therapeutic use, and the specific barriers and opportunities that the UNILAG campus environment presents for eco-therapy programme delivery, is the prerequisite for the evidence-based eco-therapy programme design that the hypothesis proposes. The UNILAG Yaba campus occupies 730 hectares whose environmental character is substantially more ecologically diverse than the surrounding dense urban fabric of the Lagos mainland might suggest: the campus includes the UNILAG Botanical Garden, a designated heritage natural area within the campus grounds whose management by the Department of Botany has maintained a collection of over 400 plant species including tropical forest specimens, medicinal plants, and ornamental plantings across a 12-hectare area; the Lagos Lagoon shoreline, which forms the northern boundary of the campus and provides the most evocative and ecologically significant natural feature available for therapeutic nature contact, with views across the lagoon to the mangrove margin and the open water whose visual complexity and tranquillity provide the precise natural stimu-

lus that Ulrich's (1984) theory identifies as the most psychophysiological active stress recovery environment; and the woodland areas of the Faculty of Science's ecological research plots, whose canopy closure, ground vegetation, and bird activity provide the biotic environmental complexity that Ulrich's theory and the broader ecotherapy literature identify as most effective for parasympathetic activation and cortisol reduction.

Oyedemi and Agboola's (2017) ecological assessment of the UNILAG Botanical Garden found that the garden's species richness, canopy cover, and acoustic characteristics, specifically the attenuation of Lagos's ambient traffic noise to below 50 decibels within the garden's interior, met the environmental quality thresholds established by Ulrich's (1984) experimental research as necessary for psychophysiological stress recovery to occur, with the garden's combination of botanical visual complexity, water feature sounds, and auditory separation from urban noise constituting the three sensory dimensions whose concurrent provision Ulrich identifies as most potent for affective stress recovery. The lagoon shoreline's ecological significance is documented by Nwankwoala's (2013) assessment of Lagos Lagoon wetland ecology, whose findings of continued mangrove, fish, and bird species presence despite the severe pollution and urbanisation pressures of the surrounding metropolitan area established that the ecological integrity sufficient for the restorative environmental stimulus that Ulrich's theory requires is maintained along the campus shoreline, notwithstanding the urban environment context in which it sits. The specific therapeutic value of the lagoon shoreline for UNILAG students from Lagos communities, whose cultural and ecological identities are deeply connected to the coastal and waterway environments whose transformation by climate change and urban development generates the solastalgia that Albrecht's (2003) framework identifies, extends beyond the generic psychophysiological

stress recovery mechanism to include the reconnection with a culturally significant and emotionally meaningful natural environment whose therapeutic dimension the clinical eco-therapy literature increasingly recognises as distinct from and additive to the generic restorative environment effect.

3.3 International and African Evidence on Climate-Responsive Mental Health Interventions and Student Outcomes

The international evidence base on climate-responsive mental health interventions for university students has expanded substantially since 2017, though significant limitations constrain direct application to the UNILAG context. Coventry et al.'s (2021) systematic review and meta-analysis of 136 randomised controlled trials and quasi-experimental studies found pooled effect sizes of Cohen's $d = 0.50$ for anxiety and $d = 0.53$ for depression across nature-based interventions—effects comparable to first-line pharmacological treatments for mild-to-moderate conditions. Eco-therapy specifically, defined as structured therapeutic contact with natural environments facilitated by trained therapists, showed larger effects ($d = 0.64$ anxiety, $d = 0.71$ depression) than unstructured nature access or horticulture therapy. The twelve-week dose identified as producing most durable outcomes informs programme design parameters. However, this evidence derives predominantly from temperate Western settings; tropical urban African contexts remain substantially underrepresented.

Hogg et al.'s (2021) randomised controlled trial of an eight-session Climate Anxiety Support Group with Australian university students found significant reductions in Climate Anxiety Scale, GAD-7, and PHQ-9 scores at post-programme and three-month follow-up, with largest effects on functional impairment subscales. Ojala's (2016) five-year longitudinal Finnish study demonstrated that structured meaning-focused coping facilitation through group discus-

sion produced significantly lower climate anxiety and higher wellbeing at follow-up. These studies establish mechanism evidence—climate science normalisation reducing catastrophising appraisals, meaning-focused coping reducing helplessness, group validation reducing social isolation—that is theoretically generalisable across cultural contexts. Yet neither study sampled African participants; their Australian and Nordic institutional environments differ markedly from UNILAG’s climate exposure profile, cultural traditions, and collectivist coping patterns identified by Okafor and Nweke (2019).

African evidence remains limited but directionally consistent. Asante and Agyei-Mensah’s (2021) cross-sectional study at the University of Ghana documented significant inverse associations between campus green space use quality and student anxiety and depression scores. Berto’s (2014) review found Ulrich’s psychophysiological stress recovery mechanism replicated in tropical and sub-tropical settings with comparable effect magnitudes to temperate research. Soga et al.’s (2016) systematic review confirmed consistent greenspace–mental health associations across sub-Saharan African settings, with stimulus quality predicting outcomes more strongly than exposure duration. These findings establish cross-cultural robustness of nature-based mechanisms but do not constitute intervention efficacy trials; they demonstrate correlational associations and theoretical replication rather than clinical programme effectiveness.

Climate-sensitive counselling evidence is the most emergent and least rigorously tested. Clayton’s (2021) clinical guidance and Pihkala’s (2019) climate grief counselling framework integrate ecological grief acknowledgement, meaning-focused coping facilitation, and climate action efficacy building. Doherty’s (2020) practitioner review of clinical case series identifies differential assessment of adaptive versus maladaptive climate anxiety, normalisation of climate

grief as a rational response, and values clarification as components most consistently associated with positive outcomes. However, randomised controlled trial evidence is not yet available; the modality relies on accumulated clinical consensus rather than experimental demonstration.

Collectively, these studies establish that climate-responsive mental health interventions—eco-therapy, psychoeducational groups, and climate-sensitive counselling—possess theoretical plausibility and preliminary efficacy evidence in Western contexts, with African correlational research supporting mechanism generalisability to tropical urban environments. However, they do not establish whether these modalities would produce equivalent outcomes at UNILAG specifically. None of the reviewed studies sampled UNILAG students, assessed Lagos-specific climate exposures, or evaluated service delivery within Nigerian federal university resource constraints. The counsellor-to-student ratio of 1:3,000 documented by Aina and Morakinyo (2011), the absence of climate-specific protocols in existing services, and infrastructural deficits limiting green space accessibility and quality on and around the Yaba campus all represent implementation barriers not accounted for in existing efficacy trials conducted in well-resourced settings.

The appropriate inference is therefore conditional rather than causal. The international evidence suggests that if climate-specific distress exists among UNILAG students at clinically significant levels, and if institutional capacity can be adapted to deliver eco-therapy, group psychoeducation, and climate-sensitive counselling within existing constraints, then the theoretical mechanisms and preliminary efficacy evidence support plausible effectiveness. However, whether these conditions obtain, and whether predicted outcomes materialise, requires empirical investigation within the UNILAG context itself. The reviewed literature therefore justifies programme development and pilot evaluation, but does not warrant assumption

of established intervention efficacy for this specific institutional setting.

3.4 Institutional Barriers and Enablers for Climate-Responsive Mental Health Services at UNILAG

The institutional barriers to the development of climate-responsive mental health services at UNILAG reflect the compound of the general constraints on Nigerian federal university student mental health service development, specifically the chronic understaffing of counselling divisions, the absence of ring-fenced mental health service budgets, and the cultural stigma surrounding mental health help-seeking that reduces utilisation rates below even the limited service capacity available, with the specific barriers of the absent recognition of climate change as a mental health risk factor in the Nigerian clinical training curriculum, the absence of eco-therapy training in the professional development programmes available to Nigerian counselling practitioners, and the political sensitivity of climate change as a subject in the institutional environment of a university whose major research funding comes from the petroleum industry through alumni networks whose primary professional interest is the continuation of fossil fuel development. Understanding these barriers with analytical precision is the foundation for the service development strategy that Section 7's recommendations address.

The counsellor training gap is the most immediately addressable barrier to climate-responsive service development at UNILAG, because the counsellors in the Student Counselling and Health Services Division are professionally qualified clinical psychologists and counselling psychologists whose existing clinical competencies provide the foundation from which climate-sensitive assessment and intervention skills can be developed through targeted continuing professional development. The absence of climate anxiety from the training curricula of Nigerian clinical and coun-

selling psychology degree programmes, documented by Nwoye's (2015) curriculum analysis of psychology training at twelve Nigerian universities, means that practising counsellors have not encountered the climate anxiety and eco-therapy literature in their professional training and have no institutional mechanism through which to access it other than self-directed continuing professional development. The Climate Psychology Alliance's CPD training programme for practitioners working with climate distress, which is available online and has been accessed by practitioners in African contexts, provides the most accessible available training resource for UNILAG counsellors whose engagement with this programme could be supported through a TETFund staff development grant application.

The eco-therapy programme's campus delivery requires the formal recognition of the UNILAG Botanical Garden and Lagoon Shoreline as therapeutic spaces within the Student Health and Counselling infrastructure, whose institutional designation would require the engagement of the UNILAG Physical Plant Division and Faculty of Science whose management of these spaces currently reflects their research and educational rather than therapeutic function. The enabling conditions for this recognition include the UNILAG sustainability policy framework's recent expansion to incorporate student wellbeing dimensions, documented in Babarinde and Adeyemi's (2020) assessment of UNILAG's institutional sustainability commitment, and the UI GreenMetric rankings framework whose health and wellbeing indicators provide the institutional incentive mechanism for recognising campus green spaces as wellbeing infrastructure whose therapeutic designation would improve UNILAG's GreenMetric performance. The therapeutic designation of campus green spaces is not merely an administrative act but a meaningful cultural signal whose communication to students positions the botanical garden and lagoon shoreline as sanctioned spaces for psycholog-

ical restoration rather than recreational areas whose therapeutic use requires justification, providing the meaning element modification in Shove's (2003) social practice framework terms that is as important as the material provision of the space itself for ensuring that students use the eco-therapy resource at the frequency required for therapeutic benefit.

The mental health stigma barrier in the Nigerian university context, whose documentation by Okonkwo and Nwoke (2021) found that 67 percent of UNILAG students who reported significant psychological distress had not sought counselling services due to perceived stigma, fear of academic consequences, and the cultural norm of managing distress through family networks rather than institutional services, creates the utilisation challenge that the Campus Environmental Engagement Programme partially addresses by providing climate-anxiety-relevant psychological benefit through a universally accessible participation activity that does not require the acknowledgement of mental health need that formal counselling service access entails. The eco-therapy programme and psychoeducational groups whose framing as climate education and environmental engagement activities rather than mental health treatment reduces the stigma barrier for the substantial proportion of climate-distressed students whose non-clinical presentation precludes or whose stigma sensitivity prevents formal counselling engagement, providing the stepped care model whose lower-threshold universal provision reduces the gap between need and utilisation that the stigma barrier creates.

3.5 Policy, Accreditation, and National Architecture for Student Climate Mental Health

The policy and institutional architecture supporting climate-responsive student mental health services at Nigerian federal universities encompasses the NUC's mental health policy for Nigerian universities, the Nigerian Clinical Psychology Association's continuing

professional development framework, the TETFund staff development grant programme, and the World Health Organization's mental health action plan whose implementation in Nigeria provides the national policy mandate for addressing mental health as a public health priority. This thematic domain identifies the most consequential policy reforms and governance investments for advancing the climate-responsive mental health service agenda across the Nigerian federal university system.

The NUC's Student Welfare and Health Policy, whose 2018 revision introduced mental health as a specific obligation within the student welfare framework for all accredited Nigerian federal universities, establishes the regulatory mandate whose implementation requires every accredited institution to provide accessible counselling services to its student population. The policy's current silence on climate change as a mental health risk factor creates the same specification gap that this series has repeatedly identified in the NUC regulatory framework: the aspiration toward student mental health provision without the quality standards or content requirements that would ensure that the provision addresses the specific contemporary mental health challenges facing Nigerian university students, of which climate anxiety and climate grief are the most rapidly growing and the least currently served. A targeted revision of the NUC Student Welfare and Health Policy to require that student counselling services demonstrate awareness of and basic competency in climate anxiety assessment and intervention, operationalised through the incorporation of the Climate Anxiety Scale in standard intake batteries and the availability of at least one counsellor per institution with continuing professional development in climate-sensitive practice, would create the system-wide regulatory signal whose importance the Lazarus-Folkman secondary appraisal mechanism establishes as the most powerful available institutional adoption driver: when regulatory compliance requires

climate-sensitive practice, the resource allocation for counsellor training and eco-therapy programme development is treated as an institutional obligation rather than a discretionary enhancement.

The WHO's global guidance on climate change and mental health (2022), whose recognition of climate anxiety as a legitimate mental health concern requiring institutional response and whose recommendation of nature-based and community-based mental health interventions as components of climate resilience provides the international normative framework whose adoption by the Nigerian Federal Ministry of Health as the national mental health policy standard for climate-related mental health would provide the national policy authority for the NUC regulation revision and the institutional programme development whose system-wide adoption UNILAG's pioneer programme should catalyse. The Lagos State Ministry of Health's climate change adaptation plan, documented by Akinsemolu and Oluwafemi (2018) as including a health co-benefits component whose recognition of mental health as a climate adaptation priority is the most advanced state-level acknowledgement of climate-mental health linkage in Nigeria, provides the state-level policy authority complementing the federal NUC mandate whose combined influence creates the strongest possible institutional incentive structure for UNILAG's climate-responsive mental health service development.

4.0 DISCUSSION

The synthesis of evidence across five thematic domains produces a theoretically grounded, empirically supported, and institutionally specific case for the urgent implementation of a Climate-Responsive Mental Health Support Programme at the University of Lagos whose four-framework analytical architecture illuminates both the clinical dimensions of the climate change mental health challenge in the UNILAG stu-

dent population and the specific service design features whose combination produces the most effective available institutional response. The four frameworks converge on a diagnosis and a treatment prescription whose complementarity is the most analytically significant feature of the multi-framework architecture.

Clayton's (2020) Climate Anxiety and Psychological Responses to Climate Change framework establishes the diagnostic specificity that distinguishes effective from ineffective institutional response: the failure to distinguish adaptive from maladaptive climate anxiety, and to further distinguish maladaptive anxiety from climate grief and ecological dissociation, produces the clinical mismatch in which generic anxiety management protocols are applied to clinical presentations whose specific cognitive, affective, and motivational features require targeted interventions that the generic protocols were not designed to provide. Ogunbode et al.'s (2022) cross-national evidence that climate anxiety scores are elevated in African populations with direct climate impact experience, and Ogunbode et al.'s (2019) Lagos-specific evidence that 68 percent of the adult urban population reports climate-related worry, together establish that the diagnostic gap in UNILAG's current counselling intake assessment is producing the systematic underidentification and inappropriate treatment of a clinical burden that constitutes a substantial proportion of the anxiety and depression presentations that the Student Counselling and Health Services Division encounters. The Clinical Anxiety Scale's inclusion in UNILAG's standard intake assessment protocol is therefore not an incremental service enhancement but the most consequential single clinical governance reform available for improving the quality and specificity of the mental health care that climate-distressed students receive.

Lazarus and Folkman's (1984) Transactional Model establishes that the mental health outcome of climate change exposure is determined not by the objective

climate threat but by the appraisal and coping transaction, providing the therapeutic leverage point for intervention: the specific cognitive reappraisals of the catastrophising primary appraisal and the helplessness secondary appraisal that characterise maladaptive climate anxiety are modifiable through the targeted therapeutic interventions of cognitive restructuring and coping efficacy building that the climate-sensitive individual counselling protocol incorporates. Ojala's (2012, 2016) evidence that meaning-focused coping is the strongest predictor of wellbeing among climate-concerned young people translates the transactional model's mechanism account into the most specific programmatic recommendation available for the psychoeducational group curriculum design: the facilitation of meaning-focused coping through values clarification, ecological narrative, and collective action planning is not merely one among several equivalent coping strategies but the coping mode whose facilitation produces the largest and most durable wellbeing improvement in the specific psychological context of climate change stress, whose global, systemic, and intergenerational character makes problem-focused coping less available and emotion-focused coping less sustainable than it is for stressors within the individual's direct sphere of influence.

Antonovsky's (1987) Salutogenic Framework establishes the health promotion design principle that reorients the entire programme from the deficit model of treating anxiety and depression to the asset model of building the Sense of Coherence whose strength is the most powerful available predictor of psychological health under chronic environmental stress. The comprehensibility, manageability, and meaningfulness components of the Sense of Coherence provide the most specific available programme design framework for the climate anxiety psychoeducational curriculum, the eco-therapy reflection process, and the environmental engagement activity design whose component-specific contributions to Sense of Coher-

ence strengthening are predicted by Antonovsky's theory and confirmed by Ojala's (2012) empirical finding that the meaningfulness and manageability components are most strengthened by the combination of group meaning-making and concrete action repertoire building that the programme proposes. Ulrich's (1984, 1993) Psychophysiological Stress Recovery Theory provides the biologically grounded evidence base for the eco-therapy programme whose clinical effectiveness, confirmed by Coventry et al.'s (2021) meta-analysis at medium effect size, makes it not merely a wellness enhancement but a clinically active treatment modality whose efficacy for mild to moderate anxiety and depression is supported by randomised controlled trial evidence comparable in quality to that supporting pharmacological first-line treatments.

4.1 Recommendations

- **Diagnostic infrastructure:** The UNILAG Student Counselling and Health Services Division should integrate the Climate Anxiety Scale (Clayton & Karazsia, 2020) into routine intake alongside GAD-7 and PHQ-9. Counsellors should be trained to distinguish adaptive climate concern, maladaptive anxiety, climate grief, and ecological dissociation for appropriate intervention planning.
- **Eco-therapy programme:** A formal twelve-session eco-therapy programme should be established within the Botanical Garden and Lagoon shoreline. Sessions should be delivered by trained counsellors using nature-based therapeutic approaches informed by Ulrich's stress recovery theory and climate grief frameworks, with routine pre- and post-intervention evaluation.
- **Psychoeducational groups:** An eight-session Climate Awareness and Coping programme should be institutionalised as a non-stigmatising educational intervention. It should combine cli-

mate literacy, meaning-focused coping strategies, and structured environmental action planning.

- **National regulatory reform:** The National Universities Commission should revise student welfare and counselling guidelines to include mandatory competency in climate-related psychological distress across all federal universities, enforced through accreditation standards.
- **Federal policy development:** The Federal Ministry of Health should develop a national climate change and mental health framework aligned with WHO (2022) guidance. UNILAG should function as a pilot site for implementation and evaluation.

5.0 CONCLUSION

This review establishes the theoretical plausibility and preliminary international evidence supporting climate-responsive mental health interventions within the UNILAG context, particularly eco-therapy, psychoeducational group work, and climate-sensitive counselling approaches. However, the existing evidence base is still largely derived from Western and non-African settings, with limited empirical research examining intervention effectiveness in sub-Saharan African university environments. Although UNILAG presents a convergence of factors—including documented student mental health burden, significant exposure to climate-related environmental stressors, and a lack of climate-specific mental health service provision—these conditions do not in themselves confirm intervention effectiveness. Rather, they highlight a critical need for context-specific empirical evaluation. The proposed interventions should therefore be understood as theoretically grounded and promising models that require systematic testing within Nigerian institutional, cultural, and resource constraints before any claims of effectiveness or scalability can be made.

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