Sustainable Design for Mental Health: A Framework of Spatial Indicators for University Campuses

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Abstract

The mental health crisis among university students is gradually increasing, from psychological fatigue, burnout, and anxiety to suicide, forcing universities to integrate a mental health focus in sustainable campus planning. Mental health can be influenced, either alleviated or exacerbated, by the academic environment. Campus Sustainability Assessment Tools (CSATs) provided various indicators, but few include spatial indicators related to mental health. To bridge this gap, it is essential to understand the influence of spatial aspects on students' psychological well-being. Identifying environmental stressors and spatial qualities and translating them into indicators that can be consistently defined and evaluated is relevant. This study aims to address the gap in CSATs regarding students' mental health and to develop spatial indicators for universities to embed mental health. The goal is to propose spatial indicators that allow universities to evaluate and measure the relationship between the built campus environment and mental health. A comparative analysis was conducted on ten CSAT frameworks and two related frameworks, including the Global Reporting Initiative (GRI) and the Circular Economy (CE), with a focus on identifying and evaluating existing assessments. In parallel, a review was conducted to analyze key psychological stressors and interventions in the academic environment for university students' mental health. This included formulating spatial indicators that describe, quantify, and assess the relationship to psychological outcomes. Findings show that existing CSATs prioritize curriculum and teaching approaches, and research includes scholarship, social network, and operational aspects. However, only the Sustainability Tool for Auditing Universities' Curricula in Higher Education (STAUNCH) and Sustainability Tracking, Assessment & Rating System (STARS) explicitly reference mental health. Apart from STAUNCH and UI GreenMetric, which include indicators of biodiversity and green space ratio, respectively, nearly all frameworks focus on non-physical, conceptual metrics. The identification of spatial indicators is linked to specific design attributes—such as natural light, spatial openness, and access to nature—that promise reduced stress and enhanced emotional well-being. Key findings related to the study's spatial indicators propose a three-part indicator set: 1. Psycho-spatial indicators (e.g., light, acoustic, and visual comfort, finishing material, accessibility, air quality, layout). 2. Socio-spatial indicators (e.g., communal area, visibility, accessibility, safety, interconnection). 3. Restorative spatial indicators (e.g., naturalness, spatiality, safety and security, privacy-public balance). Universities must focus on preserving students' mental health by improving their physical environments, especially because supporting and fostering mental health is no longer optional. Understanding the tangible ways in which space impacts mental health enables universities to define clear, measurable criteria for improvement. These findings offer a practical foundation for evaluating existing environments and guiding future design interventions. A three-part indicator set will be developed and applied through a mixed-method case study approach, implemented in two existing campuses, and it will be examined in depth via on-site observations, structured interviews, and student surveys to capture both measurable data and lived experiences. The framework aims to articulate the connection between spatial design and mental health and to establish a methodology for identifying, defining, and assessing these indicators across different university settings.

Keywords: campus sustainability, mental health design, spatial indicators

1. Introduction

The World Health Organization (WHO) shows that the number of noncommunicable diseases, including mental health issues, is increasing (WHO, 2024). Furthermore, the United Nations (UN) highlighted good health and well-being in the third point in their 2030 Agenda for Sustainable Development (Nation, 2015), which aligns with the focus on psychological issues from the WHO. Not only people in general, but also specific groups, like young people, such as university students, are experiencing problems with their mental health, recently increased (Ibrahim, 2013; Sheldon, 2021; Abram, 2022). The pressure is associated with several causes, such as the educational environment, social pressure, learning environment, etc. (Nissen, 2019; Breet, 2021; Mofatteh, 2021; Yang, 2022) and can impact students' physiology and psychology (Eisenberg, 2007; Mofatteh, 2021; Sheldon, 2021). These pressures elevate level of psychological stress (Gabriel X.D. Tan, 2023; Paiva, 2025), and one of the most pressing and critical is anxiety (Health, 2023; Sansone, 2010), following by depression, eating and sleeping disorder (Cuttilan, 2016; Wang L. &., 2022) which in some serious cases can lead into suicide.

The university campus is not only a learning and academic environment, but it should be a living and breathing environment that significantly influences students' physical and psychological well-being, especially because students spend most of their time on campus. This fact forces universities to respond to this emerging wellbeing crisis by integrating a focus on mental health in the campus environment (Dooris, 2010; Coulson J. R., 2010; Coulson J. R., 2022) and also into the curriculum (Booker, 2019). Directly and indirectly, the spatial

campus environment—the availability of green area, quality of natural light, acoustic, accessibility, and safety—can be impactful on either restoration or deterioration of students' mental health (Wang M. Z., 2025; Zhang, 2024; Malekinezhad, 2020). Given this dynamic, universities must integrate mental health as a core consideration in their sustainability movement.

Campus Sustainability Assessment Tools (CSATs) is one of the valuable frameworks for evaluating performance, social engagement, and governance. Since 2000, the Assessment Instrument for Sustainability in Higher Education (AISHE) has been developed (Roorda, 2001). Previously, several higher education institutions could refer to the Circular Economy (CE) Model (D'Adamo, 2024) or other frameworks such as the Global Reporting Initiative (GRI) (Initiative, GRI 2: General Disclosures 2021, 2021). Current CSATs focus on carbon emission, energy efficiency, recycling, and administrative indicators. The psychological dimension of space related to students' mental health remains underexplored.

This paper argues that sustainability and mental health are linked directly and indirectly through spatial experience. By identifying and embedding spatial indicators into sustainability assessments, universities can promote environmental sustainability. At the same time, the space can have a restorative and therapeutic effect on mental health and, in this way, contribute to social sustainability.

2. Research Objectives

The primary goal of this research is to develop a framework of spatial indicators that explicitly address student mental health within the context of sustainable campus design. This includes bridging the disciplinary gap between spatial planning, sustainability evaluation, and psychological well-being. By identifying measurable spatial characteristics that influence mental health, the study aims to support campus designers and university administrators in developing evidence-based interventions that align with broader sustainability goals.

To achieve this, the study is guided by the following objectives:

- To critically examine the extent to which mental health and spatial qualities are considered in existing CSATs.
- To explore spatial attributes that influence mental well-being based on current interdisciplinary research.
- To propose a set of spatial indicators that can be integrated into sustainability assessment tools and used for campus design.

3. Methodology

This study was conducted using a three-part methodological approach. First, a comparative analysis of ten Campus Sustainability Assessment Tools (CSATs) was carried out, supported by two relevant frameworks—the Global Reporting Initiative (GRI) and the Circular Economy (CE)—to identify and evaluate the existing frameworks within higher education institutions. Second, a comprehensive literature review related to architecture and mental health was discussed. Lastly is the development of an indicator regarding spatial and mental health will be developed.

The highlight focus is to examine key psychological stressors in university design, as well as evidence-based interventions to promote university students' mental health.

This study is structured around the following research questions, each corresponding to a major finding in the analysis:

RQ1: To what extent do current CSATs address spatial consideration to enhance mental health?

RQ2: Which factors from spatial can promote students' mental health?

RQ3: What indicator framework can universities use to embed mental health into spatial sustainability?

3.1. Comparative Analysis of Assessment Tools

The existing CSATs consist of ten frameworks, and each framework was analysed for the indicators that reference mental health, spatial design, or the relationship between both.

Tab. 1. Sustainability Assessment Frameworks in Higher Education Institutions

No	Framework	Year	Country	Reference
1.	Auditing Instrument for Sustainability in Higher Education (AISHE)	2001	Netherland	**(Roorda, 2001)**
2.	Campus Sustainability Assessment Framework (CSAF)	2003	Canada	**(Sterling, 2003)**
3.	Graphical Assessment of Sustainability in University (GASU)	2006	Spain	**(Lozano, 2006)**
4.	Curriculum Audit Tool (STAUNCH)	2007	UK	**(Publishing, 2011)**
5.	Sustainability Tracking, Assessment & Rating System (STARS)	2010	US	**(Education A. f., 2010)**
6.	UI GreenMetric	2010	Indonesia	**(Indonesia, 2010)**
7.	UniSAF (Green Office Movement)	2018	Netherlands	**(Movement, 2018)**
8.	Times Higher Education (THE) Impact Rankings	2019	UK	**(Education T. H., 2019)**
9.	QS Sustainability Rankings	2022	UK	**(Symonds, 2023)**
10.	SET4HEI (UNESCO)	2023	International	**(UNESCO, 2023)**
12.	Circular Economy (CE)	2017	UK	**(Geissdoerfer, 2017)**
11.	The Global Reporting Initiative (GRI)	2021	Netherland	**(Initiative, GRI Standards: Universal Standards, 2021)**

3.2. Literature Review

A comprehensive literature review aimed to identify spatial characteristics and environmental stressors that impact mental health. Therefore, studies by Evans (2003), Ulrich (1984), and Kaplan (1989) established the theoretical basis for spatial-psychological relationships.

3.3. Indicator Development

Spatial attributes connected to stress reduction, emotional regulation, and cognitive performance were compiled and synthesized into a three-part indicator framework. These indicators were designed to be observable, measurable, and adaptable across cultural and geographic contexts.

4. Findings and Analysis

A range of CSATs have been developed across different countries and decades, and each of them emphasizes distinct sustainability priorities. Many of these have different focuses and main indicators; the curriculum indicator is the most frequently mentioned, and is explicitly mentioned in STARS, UniSAF, STAUNCH, and CSAF. While in UI GreenMetric, the curriculum is mentioned and included in the general education section. The second most mentioned indicator is operations—in STARS, UniSAF, AISHE, STAUNCH, and CSAF, followed by governance, e.g., in STARS, QS Sustainability Rankings, UniSAF, and CSAF. Several frameworks referred closely to Sustainable Development Goals (SDGs), these are THE Impact Rankings and SET4HEI.

Spatial environment indicators such as green building, environmental footprint and ratio, layout, planning, and accessibility—are available in several CSATs, e.g., STARS, UI GreenMetric, QS Sustainability Rankings, UniSAF, GASU, CSAF, GRI, and CE. THE Impact Rankings and SET4HEI write the indicators related to Goal 11 (Infrastructure) from SDGs as a point of spatial environmental.

4.1. Identified Gaps in CSATs

Despite the wide array of approaches, the mental health topic itself was stated, and several of them have indicators related to the spatial environment. STARS, UniSAF, and GRI have a focus on health and well-being, including the program and service. Three of the frameworks—THE Impact Rankings, QS Sustainability Rankings, and SET4HEI—integrate SDG goal 3, which is related to good health and well-being. This study found that most CSATs neglect the connection between the psychological and spatial dimensions of sustainability. Mental health is occasionally referenced in policy or program contexts (as in STARS), and spatial metrics such as green space ratios appear in UI GreenMetric. Very little was found in the literature on frameworks offering a structured, integrative approach to assessing spatial qualities that affect student mental well-being (Herrmann-Lunecke, 2021; Prugneau, 2015). This highlights the need for a framework that bridges the physical, psychological, and social dimensions of campus environments.

Even though frameworks like STARS and UI GreenMetric are widely adopted, their focus remains predominantly environmental and administrative. STARS briefly references health in the context of wellness programs, and UI GreenMetric includes green space as a quantitative measure. However, neither framework elaborates on spatial design nor its psychological implications. Similarly, GRI and CE frameworks, while systemically comprehensive, lack direct application to the human-scale built environment. Likewise, the STAUNCH framework, which embeds sustainability only into university curricula. However, it focuses on educational content rather than physical space.

Three indicators mention mental health and the connection to the spatial indicators. First is THE Impact Rankings. Even though the framework emphasizes institutional performance, it does not explore psychological impacts from the spatial environment, and the SDG-linked indicators lack understanding of the connection between the spatial environment and mental health outcomes. UniSAF provides customizable spatial-health mapping tools, but it does not explicitly address the psychological dimensions of the spatial environment, e.g., noise level and accessibility to green space. While in SET4HEI, mental health is a secondary concern, in CSAF, the conceptual integration remains blurry. As a result, none of the existing tools offer a comprehensive method for analyzing the impact of campus spatial design on mental health.

Tab. 2a. Sustainable Frameworks: Indicators & Mental-Spatial Relevance

No	Framework	Main Indicators	Mental Health		Spatial Environment		Mental-Spatial Relevance & Integration	
1.	AISHE	Curriculum, research, operations, policy	(0)	Indirect via curriculum	(0)	Limited spatial focus	(-)	No direct integration
2	CSAF	Curriculum, governance, operations, community	(+)	Emerging inclusion of well-being	(+)	Spatial planning, environmental psychology	(+)	Conceptual integration
3	GASU	Visual mapping of sustainability dimensions	(0)	Limited to visual only	(+)	Campus layout, built environment	(0)	Conceptual links only
4	STAUNCH	Curriculum, research, operations, community	(-)	No health indicators	(-)	No spatial indicators	(-)	Not applicable
5	STARS	Curriculum, operations, engagement, planning, innovation	(+)	Wellness programs, mental health services	(+)	Land use, green buildings, transport	(+)	Green space linked to well-being
6	UI GreenMetric	Infrastructure, energy, waste, water, transport, education	(0)	Indirect via infrastructure	(+)	Green area ratio, transport	(0)	Limited integration
7	UniSAF	Governance, curriculum, operations, community, well-being	(+)	Well-being and social indicators	(+)	Campus layout, accessibility	(+)	Customizable spatial-health mapping
8	THE Impact Rankings	SDG-based: SDG 3, SDG 4 (quality education), SDG 11, SDG 13 (climate action), SDG 17 (partnership for the goals)	(+)	SDG 3 (good health and well-being),	(+)	SDG 11 (sustainable cities and communities)	(+)	SDG-linked spatial-health outcomes

Tab. 3b. Sustainable Frameworks: Indicators & Mental-Spatial Relevance

9	QS Sustainability Rankings	Environmental impact, social impact, governance	(+)	Social impact, health-related SDGs	(+)	Environmental footprint, spatial impact	(0)	Emerging integration
10	SET4HEI	SDG alignment, institutional practices, infrastructure	(+)	SDG 3 integration	(+)	SDG 11 infrastructure	(+)	SDG-aligned spatial-health indicators
11	CE	Material flows, waste reduction, reuse, lifecycle analysis	(0)	Indirect via pollution/waste impacts	(+)	Urban design, resource loops	(0)	Conceptual links to well-being
12	GRI	GRI 1-3 (universal), GRI 200-400 (Topic), Sector Standards	(+)	GRI 403: Occupational health & safety	(+)	GRI 302-305: Energy, emissions, land use	(0)	Limited integration; mostly operational

4.2. Spatial Influences on Mental Health

The influence of spatial qualities on mental health is well-established in architecture theory and environmental psychology. The theory of environmental preferences from Kaplan and Kaplan (1989) is widely used as a foundation of many concepts of "restorative environments". It is suggested that individuals are influenced by a setting that is coherent, legible, and restorative, and these qualities reduce mental fatigue and promote cognitive function. The concept of restorative environments is often a foundation of spatial design that can be beneficial for mental health. In addition, Ulrich provided empirical evidence of the physiological and psychological benefits of exposure to nature. The insight proves that hospital patient recovery processes faster by having a view of greenery, which translates directly into campus planning with greenery, including view, access, and integration. The same counts for the impact of green walls on health (Cardinali M. et al., 2023)

On the other hand, Evans (Evans, 2003) explored the stressors from environmental factors—such as noise, crowding, and lack of control that directly impact increasing anxiety and emotional distress. His theory is to minimize overstimulation and offer students a sense of belonging, acoustic balance, and visual comfort. Several other theoretical foundations are relevant as key spatial attributes for university students' mental health, such as natural light exposure to reduce depressive symptoms (Boubekri, 2014), acoustic comfort to improves focus and decreases mental fatigue (Evans, 2003; Andersson, 2020) and accessibility to green area (Hartig, 2014; Kaplan, 1989). The connection between good accessibility to green areas has also been supported by the theory about biophilic design (Kellert, 2008; Bolten, 2020; Xing, 2025) and by investigations on the proximity of green spaces (Cardinali M., et al., 2024)

4.3. The Three-Part Framework

From these insights, a three-part set of spatial indicators was developed:

Tab. 4. Proposed Spatial Indicators and their Mental Health Functions

Indicator set	Sample Indicators	Mental Health Effects
Psycho-Spatial	Natural and artificial lighting, acoustic comfort, air quality and ventilation, thermal regulation, finishing materials, and visual clarity	Reduce stress, support focus, and address individual sensory and environmental needs.
Socio-Spatial	Communal gathering spaces, safety (passive surveillance and open sightlines), accessibility and inclusive design, visibility (emergency and clear signage)	Facilitates social interaction, reduces isolation.
Restorative Spatial Indicator	Nature access (presence of greenery and water features), opportunities for solitude, privacy (balance public and private zones, including providing transitional spaces), sensory relief (access directly to nature or landscape)	Support and provide emotional and cognitive relief.

These indicators are structured to allow integration into existing planning documents and post-occupancy evaluations.

5. Discussion

Integrating mental health into sustainability planning requires a shift in mindset—from one that views well-being as supplemental, to one that recognizes it as foundational. In the past, health and sustainability were treated as separate domains: it was addressed through services and interventions, and afterwards, health and sustainability were delivered as energy, resources, and emissions management. Spatial indicators offer a pathway for design professionals, campus administrators, and policymakers to make evidence-based decisions that directly benefit students' emotional and cognitive resilience.

The proposed framework encourages an integrative approach that aligns mental health and spatial planning with sustainability goals. It answers the gap by offering a three-part indicator set, psycho-spatial, socio-spatial, and restorative dimensions, that are grounded in human experience. These indicators are not complete; instead, they fulfill the existing environmental indicators to make university space a proactive point in supporting psychological resilience. Psycho-spatial indicators should consist of several sub-indicators focusing on individual needs by giving access to the factors that impact directly and personally—lighting, acoustic, air quality, and view. Socio-spatial indicators focus on the interaction between the scale person to person until group to group by providing facilitation, comfort, and safety. Finally, the indicator highlights not only the present time, but more into the impact in the long term. Restorative spaces can support and provide psychological relief to individuals and also to groups of people.

The framework is also consistent with the United Nations Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 11 (Sustainable Cities and Communities). Aligning campus development with these goals reinforces the role of universities as leaders in social innovation and sustainable development.

6. Future Implementation

There are many possibilities to develop the indicators in CSATs; therefore, the next stage of this research involves piloting the

indicator framework through mixed-method case studies at two university campuses—one in Germany and one in Indonesia. These case studies will include:

- Spatial observation and mapping
- Interviews with students, architects, and facility managers
- Structured surveys capturing emotional and spatial perceptions

The goal is to validate the practicality of the indicators and refine them for broader application. In the long term, the framework could be developed into a certification or self-assessment tool specifically focused on campus mental health and spatial design.

7. Conclusion

As mental health challenges grow among university students, institutions must take a more holistic approach to campus planning. This paper presents an indicator set with the focus on the psychological impact of space on students' well-being, bridging the gap between sustainability assessments and direct implication.

By incorporating psycho-spatial, socio-spatial, and restorative spatial indicators into campus sustainability assessment tools, universities can create spatial environments oriented to enhance students' mental health—they can cultivate resilience, creativity, and community. In doing so, they uphold not only the academic mission but the human mission of higher education.

References

1. Abram, Z. (12 10 2022). American Psychological Association. Retrieved from: https://www.apa.org/monitor/2022/10/mental-health-campus-care Accessed 30.07.2025
2. Andersson, K. &. (2020). Building design and health: A systematic review. Buildings & Cities, 1(1), 408-428.
3. Bolten, B. &. (2020). Biophilic design: How to enhance physical and psychological health and wellbeing in our built environments. Visions for Sustainability, 13, 11-16.
4. Booker, A. M. (2019). Implementing a whole-of-curriculum approach to student wellbeing. Student Success, 10 (3).
5. Boubekri, M. C.-H. (2014). Impact of windows and daylight exposure on sleep and quality of life. Journal of Clinical Sleep Medicine, 10(6), 603-611.
6. Breet, E. M. (2021). Systematic Review and Narrative Synthesis of Suicide Prevention in High Schools and Universities: A Research Agenda for Evidence-Based Practice. BMC Public Health 21, no. 1., 1-21.
7. Cardinali, M. (2023). Preferred reporting items in green space health research. Guiding principles for an interdisciplinary field. Environmental Research vol. 228, 115893.
8. Cardinali, M. (2024). The relationship between proximity to and characteristics of green spaces to physical activity and health: A multi-dimensional sensitivity analysis in four European cities. Environmental Research volume 241, 117605.
9. Coulson, J. R. (2010). University Planning and Architecture: the Search for Perfection. Taylor & Francis Group.
10. Coulson, J. R. (2022). University Trends: Contemporary Campus Design (3rd Edition). UK: Routledge, Abingdon.
11. Cuttilan, A. N. (2016). Mental health issues amongst medical students in Asia: A systematic review. International Journal of Environmental Research and Public Health, 13(2), 207.
12. D'Adamo, I. F. (2024). Towards circular economy indicators: Evidence from the European Union. Waste Management and Research, 42(8), 670-680. https://doi.org/10.1177/0734242X241237171
13. Dooris, M. D. (2010). Healthy Universities: current activity and future directions - findings and reflections from a national-level qualitative research study. Global Health Promot, 17 (3).
14. Education, A. F. (2010). Sustainability Tracking, Assessment & Rating System (STARS) version 1.0: Technical manual. Von https://stars.aashe.org/ abgerufen
15. Education, T. H. (2019). University Impact Rankings 2019. Von https://www.timeshighereducation.com/rankings/impact/overall/2019 abgerufen
16. Eisenberg, D. G. (2007). Prevelance and Correlates of Depression, Anxiety, and Suicidality Among University Students. Am J Orthopsychiatry 77(4), 534-542. doi:doi: 10.1037/0002-9432.77.4.534
17. European Environment Agency. (2012). EEA Report No 11/2012: Water resources in Europe in the context of vulnerability. Copenhagen: EEA. doi:10.2800/65298
18. Evans, G. W. (2003). The built environment and mental health. Journal of Urban Health, 80(4), 536-555.
19. Gabriel X.D. Tan, X. C. (2023). Pervalence of anxiety in college and university students: An umbrella review. Journal of Affective Disorders Reports.
20. Geissdoerfer, M. S. (2017). The circular economy - A new sustainability paradigm? Journal of Cleaner Production 143, 757-768.
21. Hartig, T. M. (2014). Nature and health. Annual Review of Public Health, 35, 207-228.

22. Health, C. F. (2023). 2022 Annual Report (Publication No. STA 23-168). America: Pennsylvania Stat University.
23. Herrmann-Lunecke, A. Z. (2021). Mental Well-Being and the Influence of Place: Conceptual Approaches for the Built Environment. Sustainability, Volume 13, Issue 11.
24. Ibrahim, A. K. (2013). A Systematic Review of Studies of Depression Prevalence in University Students. Journal of Psychiatric Research 47, no. 3, 391-400.
25. Indonesia, U. (2010). UI GreenMetric World University Rankings: Methodology and results. UI GreenMetric.
26. Initiative, G. R. (2021). GRI 2: General Disclosures 2021. the Netherlands: GRI Standards.
27. Initiative, G. R. (2021). GRI Standards: Universal Standards. Von https://www.globalreporting.org/standards abgerufen
28. Kaplan, R. &. (1989). The Experience of Nature: A Psychological Perspective. Cambridge University Press.
29. Kellert, S. R. (2008). Biophilic design: The theory, science, and practice of bringing buildings to life. Wiley.
30. Lozano, R. (2006). A tool for a Graphical Assessment of Sustainability in Universities (GASU). Journal of Cleaner Production, 14(9–11), 963-972.
31. Malekinezhad, F. C. (2020). Investigating the mental health impacts of university campus green space through perceived sensory dimensions and mediation effects. Frontiers in Public Health, 8, 578241.
32. Mofatteh, M. (2021). Risk Factors Associated with Stress, Anxiety, and Depression Among University Undergraduate Students. AIMS Public Health 8, no. 1, 36-65.
33. Movement, G. O. (2018). UniSAF: University Sustainability Assessment Framework. Netherlands.
34. Nation, U. (2015). Transforming our world: The 2030 Agenda for Sustainable Development.
35. Nissen, S. B. (2019). Student Debt and Wellbeing: A Research Agenda. New Zealand Journal of Social Sciences 14, no. 2, 245-256.
36. Paiva, Ú. (2025). Mental health and emotional well-being in university students. Doctoral thesis, University of Navarra, Institute for Culture and Society.
37. Prugneau, S. F. (2015). Assessing Students' Wellbeing in a Spatial Dimension. The Geographical Journal, Vol. 181, No. 2.
38. Publishing, E. G. (2011). Sustainability Tool available for Auditing Curricula in Higher Education (STAUNCH). International Journal of Sustainability in Higher Education, 10(4). doi:https://doi.org/10.1108/ijshe.2009.24910dab.003
39. Roorda, N. (2001). ISHE: Auditing Instrument for Sustainability in Higher Education. the Netherlands: Stichting Duurzaam Hoger Onderwijs.
40. Sansone, R. A. (2010). Gratitude and well being: The benefits of appreciation. Psychiatry, 7(11), 18-22.
41. Sheldon, E. S.-B. (2021). Prevalence and risk factors for mental health problems in university undergraduate students: a systematic review with meta-analysis. J. Affect Disord. 287, 282-292. doi:doi: 10.1016/j.jad.2021.03.054
42. Sterling, S. &. (2003). Developing Sustainability in Higher Education. HEPS Project Report. Forum for the Future.
43. Symonds, Q. (2023). QS World University Rankings: Sustainability 2023. Von QS Top Universities: https://www.topuniversities.com/sustainability-rankings abgerufen
44. Ulrich, R. S. (1984). View through a window may influence recovery from surgery. Science, 224 (4647), 420-421.
45. UNESCO. (2023). SET4HEI: Sustainability Evaluation Tool for Higher Education Institutions. Von https://set4hei.org/self-assessment/ abgerufen
46. Wang, L. &. (2022). Work stress, mental health, and employee performance. Frontiers in Psychology, 13.
47. Wang, M. Z. (2025). Campus environments and mental restoration: Eye-tracking evidence from dynamic stimuli. Engineering, Construction and Architectural Management.
48. WHO. (23. 12 2024). Noncommunicable diseases. Von https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases abgerufen
49. Xing, Y. S. (2025). Exploring biophilic building designs to promote wellbeing and stimulate inspiration. PLoS ONE, 20(3), 30317372.
50. Yang, M. J. (2022). A study on the mechanism of ESG performance on corporate value. oft Science, 36, 78-84.
51. Zhang, J. J. (2024). The impact of green space on university students' mental health: The mediating roles of solitude competence and perceptual restoration. Sustainability, 16(2), 707.