

Designing for Wellness: How Therapeutic Architecture Can Enhance User Wellbeing in Lekki, Lagos

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Abstract—The growing urbanisation of Lekki, Lagos, presents complex challenges to the physical and mental wellbeing of its residents and users. This study investigates how therapeutic architecture can enhance user wellbeing in wellness-focused facilities within this dynamic urban context. Using a quantitative research design, data were gathered from 196 participants drawn from Dew Centre and Happiness Centre through structured questionnaires. The data were analysed using SPSS v.26, applying descriptive and inferential statistics to uncover patterns in user perceptions of key architectural features. Findings revealed that biophilic elements, including natural light, greenery, and visual connections to nature, had a strong positive correlation ($r = 0.62$, $p < 0.001$) with users' sense of calm. Clear pathways and spatial simplicity were also significant predictors of positive emotional outcomes, while complex layouts showed a moderate negative association with feelings of calm ($r = -0.38$, $p = 0.021$). Stakeholder-specific preferences varied: healthcare providers prioritised hygiene-compliant materials and functional clarity, while users emphasised privacy, access to daylight, and noise reduction. Based on these results, the study recommends the integration of biophilic design, modular and adaptable spaces, gender- and occupation-sensitive design interventions, and the creation of therapeutic gardens and walking loops within new and existing developments in Lekki. The findings provide an evidence-based framework for architects, planners, and developers seeking to embed wellness into the urban fabric of Lagos, with the goal of fostering healthier, more resilient communities.

Index Terms—Therapeutic architecture, biophilic design, user wellbeing, Lekki Lagos, evidence-based design.

1. Introduction

The architecture of spaces in which individuals live, work, and heal plays a pivotal role in shaping human well-being. In recent years, the concept of therapeutic architecture has emerged as a significant design philosophy aimed at fostering mental, emotional, and physical health through the built environment. This approach transcends mere aesthetics or functionality; it integrates evidence-based strategies to create spaces that actively contribute to the wellness of their users (Abdelmoula & Abdelmoula, 2023). Nowhere is this more critical than in rapidly urbanising areas like Lekki, Lagos a cityscape where the pressures of dense population,

environmental stressors, and fast-paced living increasingly demand architectural solutions that support holistic health. Therapeutic architecture leverages the interplay of natural light, ventilation, spatial flow, sensory stimuli, and biophilic elements to create environments that soothe, restore, and uplift. Studies have shown that well-designed therapeutic spaces can reduce stress, enhance mood, and even contribute to improved clinical outcomes (Aviñó et al, 2020; Khatib et al, 2024). For instance, the integration of multisensory elements in healthcare settings has been found to lower anxiety and promote comfort, particularly in vulnerable groups such as children and the elderly (Aviñó et al, 2020). This underscores the necessity of intentional design strategies that are attuned to both psychological and physiological needs.

Lekki, with its blend of luxury developments and infrastructural gaps, presents a unique opportunity for advancing therapeutic design principles. As urban growth continues, the demand for environments that not only house but heal becomes increasingly urgent. The design of medical centres, residential communities, and public spaces in this region must reflect a commitment to wellness-oriented architecture. Evidence points to the efficacy of features such as therapeutic gardens (Mattiuz et al, 2024), biophilic interiors (Tarvirdizadeh et al, 2024), and immersive, neuro-architecture-informed environments (Bordini et al, 2021) in enhancing user well-being. These elements, when thoughtfully applied, can help mitigate the mental health challenges often exacerbated by urban living. Furthermore, the integration of therapeutic design is not limited to healthcare settings. Research highlights the potential of residential and communal spaces designed with therapeutic intent to foster long-term well-being, particularly in environments where high-stress lifestyles prevail (Nair, 2022; Koppen et al, 2024). This aligns with growing recognition within the medical and design professions that architecture should not merely provide shelter but act as a catalyst for health (Adu et al, 2024; Bloemer & Biro, 2024). In Lekki, the challenge lies in contextualising these global best practices to meet local cultural, climatic, and socioeconomic realities. Designing for wellness in this context demands a

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multidisciplinary approach—one that draws from architecture, neuroscience, psychology, and environmental science to produce spaces that are not only functional and beautiful but fundamentally therapeutic. As Lagos navigates its urban future, the role of architecture in enhancing public health outcomes will be central to building a city that nurtures both body and mind.

A. Aim & Objective

The aim of this study is to explore how therapeutic architecture can be effectively applied in the design of spaces within Lekki, Lagos, to enhance the mental, emotional, and physical well-being of users, while responding to the unique environmental, cultural, and urban challenges of the area.

The objectives of the study are to,

1. To examine the key principles and elements of therapeutic architecture that are relevant to promoting user well-being in urban environments like Lekki.
2. To assess the perceptions and needs of residents, healthcare professionals, and built environment stakeholders regarding wellness-oriented design features in Lekki.
3. To propose design strategies for integrating therapeutic architectural principles into residential, healthcare, and communal spaces in Lekki to improve overall user well-being.

2. Literature Review

The built environment plays an instrumental role in shaping human wellbeing. In recent years, architectural discourse has shifted towards designs that are not only functional but also consciously therapeutic, with the aim of enhancing both physical and mental health outcomes for users. In rapidly urbanising areas such as Lekki, Lagos, where urban stressors abound, the relevance of therapeutic architecture becomes even more pronounced. Scholars and practitioners are increasingly exploring how spatial configurations, materials, sensory stimuli, and biophilic elements can collectively contribute to environments that promote wellness, reduce anxiety, and foster emotional balance. Abdelmoula and Abdelmoula (2023) argue that architecture must go beyond traditional aesthetic and structural considerations to actively contribute to mental health support. Their work distinguishes between architecture that supports general mental wellbeing and more specialised architectural interventions designed for mental health disorders. This distinction reinforces the idea that everyday spaces not just specialised medical facilities can and should be designed with therapeutic intent to support the broader population's psychological needs. In a place like Lekki, where rapid development often prioritises commercial and residential density over human-centred design, this call for conscious, wellness-focused architecture is timely.

The perception of therapeutic design's effectiveness among medical professionals was examined by Audu *et al* (2024), who highlighted that clinicians in African contexts are beginning to appreciate how the built environment can either hinder or support treatment outcomes. Their findings suggest that

medical doctors recognise therapeutic architecture as a non-pharmacological complement to care, particularly in settings where stress-related ailments are prevalent. This reinforces the need for architects working in Lagos and similar contexts to collaborate more closely with healthcare professionals to co-create spaces that holistically address patient needs. At the heart of therapeutic architecture lies the understanding of how sensory environments impact stress and comfort. Aviñó *et al* (2020) conducted a neuro-architectural study of paediatric waiting rooms, illustrating that multisensory design involving light, sound, texture, and colour can substantially lower stress levels. The implication for urban centres like Lekki is significant; spaces that cater to diverse sensory needs can serve as refuges amid the chaos of urban living. Such approaches are not limited to healthcare but can extend to residential, commercial, and community spaces.

Emerging technologies are offering new tools for architects to simulate and evaluate therapeutic environments. Bordini *et al* (2021) demonstrated how virtual reality and neuroscience can be integrated to model hospital environments that dynamically adapt to user needs, creating homeodynamic spaces that respond to stress and promote recovery. Applying similar methodologies in designing wellness-centred spaces in Lagos could enable architects to anticipate user responses to environments before physical construction begins, optimising designs for mental health outcomes. The importance of biophilic design within therapeutic architecture is well documented. Khatib *et al* (2024), through a systematic review, provide compelling evidence that the inclusion of natural elements significantly benefits the health and wellbeing of both patients and care providers. Their findings align with Tarvirdizadeh *et al* (2024), who found that biophilic elements within medical interiors were instrumental in reducing stress levels. For Lekki a region blessed with natural beauty but facing increasing environmental degradation due to urban sprawl integrating nature into architecture offers a pathway to restore balance between the built and natural environment, supporting both ecological sustainability and human wellness. Therapeutic gardens, as explored by Mattiuz *et al* (2024), represent another key dimension of wellness-focused design. These gardens not only serve as places of relaxation and reflection but are rooted in historical traditions that recognise the healing power of nature. In densely populated urban zones like Lekki, therapeutic gardens could serve as vital green lungs, offering residents respite from environmental stressors such as noise, air pollution, and overcrowding. Nair (2022) highlights the importance of translating therapeutic principles into residential architecture. His study suggests that homes themselves can be sanctuaries that promote emotional stability, through design choices that prioritise natural light, ventilation, and the psychological comfort of occupants. This is particularly pertinent for residential developments in Lekki, where housing is often driven by market demand rather than considerations of user wellbeing.

Koppen *et al* (2024) address the concept of temporality in therapeutic design, focusing on long-stay facilities for individuals with severe intellectual disabilities. Their evidence-

based approach underscores the need for adaptable spaces that evolve with the changing needs of users. Applying this principle to urban design in Lekki could lead to more flexible community spaces that serve different wellness needs over time, fostering inclusivity and social cohesion.

The interaction between environment and pharmacotherapy, discussed by Piva *et al* (2024), opens another layer in understanding therapeutic architecture. Their work on ecocebo effects demonstrates that well-designed environments can enhance the efficacy of medical treatments. This finding could be invaluable for healthcare facilities in Lekki, suggesting that architectural interventions can indirectly support medical outcomes by modulating patient experience. While much of the literature highlights success stories, challenges also exist. Butte and Patel (2020) noted that despite the potential of digital and immersive therapeutic environments, integrating these solutions into existing healthcare infrastructure faces significant logistical and regulatory hurdles. For architects in Lagos, this serves as a reminder of the complexities involved in implementing innovative therapeutic solutions in contexts with infrastructural constraints. Finally, the human dimension of therapeutic spaces is brought to the fore in Bloemer and Biro's (2024) exploration of cultivating therapeutic presence. Their pilot project reveals how spatial design can support healthcare professionals in providing more compassionate care, ultimately enhancing the therapeutic relationship. For designers working in Lagos, this underscores the importance of considering not only patient outcomes but also the wellbeing of those who work within therapeutic spaces.

A. Study Area

Lekki, located in the eastern corridor of Lagos State, Nigeria, is a rapidly developing urban district characterised by a dynamic mix of residential, commercial, and recreational developments. Bounded by the Atlantic Ocean to the south and the Lagos Lagoon to the north, Lekki has emerged as one of the most sought-after locations for real estate, driven by its strategic position, modern infrastructure, and proximity to key economic hubs such as Victoria Island and Ikoyi. The area is marked by high-density housing estates, gated communities, shopping malls, office complexes, and hospitality facilities. However, alongside its modern urban fabric, Lekki grapples with environmental and infrastructural challenges, including flooding, traffic congestion, and diminishing green spaces. These issues contribute to heightened urban stress and impact residents' quality of life.

Given Lekki's rapid urbanisation and the rising demand for healthier living and working environments, it presents a critical context for investigating how therapeutic architecture can be integrated into the design of spaces to enhance user wellbeing. The study seeks to explore design strategies that address not only functional requirements but also promote physical, mental, and emotional wellness within this evolving urban landscape.

B. Study Population and Size

For this research, a purposive sampling method will be used to select participants and case studies relevant to the study's

objectives. This approach ensures that data is gathered from individuals and sites that provide the most valuable insights into biophilic principles and their impact on user wellness in therapeutic environments. Participants will include professionals in architecture, environmental psychology, and healthcare from Dew and Happiness centre, as well as potential users of the proposed therapeutic centre. Selecting respondents with direct experience or expertise in biophilic design will help in understanding its practical applications and effectiveness (Aduwo & Akinwale, 2020). A total of 196 respondents participated in the study after Cochran's formula for infinite population with a margin error of 0.07.

C. Data Collection Methods

This study employed a quantitative approach using structured questionnaires to gather data from 196 participants drawn from Dew Centre and Happiness Centre in Lekki. The respondents included users and staff of both facilities. The questionnaire focused on key elements of therapeutic architecture, such as spatial comfort, lighting, acoustics, and biophilic features, with responses captured on a five-point Likert scale. Data were collected over four weeks, ensuring ethical standards of consent and confidentiality.

D. Data Analysis

The data collected through the questionnaires were subjected to quantitative analysis using Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequency distributions, means, and standard deviations, were generated to summarise participants' perceptions of key therapeutic architectural features such as lighting quality, spatial comfort, acoustic control, and the presence of biophilic elements. To further explore relationships between variables, inferential statistical tests including Pearson's correlation and independent sample t-tests were applied where appropriate, to examine associations between architectural elements and reported levels of user wellbeing. All analyses were conducted at a 95% confidence level, with results presented using tables, charts, and graphs for clarity.

3. Results and Discussion

A. Findings and Discussion

(Quantitative Analysis Using SPSS v.26)

1) Descriptive Statistics

The table 1 shows the demographic distribution of respondents and table 2 shows the perceptions of therapeutic design features.

2) Inferential Statistics

The table 3 shows the Pearson correlation between key variables and the table 4 shows the independent samples t-Test.

3) Discussion Aligned with Research Objectives

a. Objective 1: Key Therapeutic Principles for Lekki

The results demonstrate a clear link between biophilic design elements and user calmness ($r = 0.62$, $p < 0.001$), affirming the critical role of natural integration in therapeutic spaces. Similarly, clarity in pathways showed a moderate positive association with emotional wellbeing ($r = 0.45$, $p = 0.012$),

highlighting the value of intuitive wayfinding. Conversely, complex spatial layouts correlated with a reduction in calmness ($r = -0.38$, $p = 0.021$), indicating that simplicity supports psychological ease.

1. *Biophilic Design Dominance*: 62% correlation with calmness ($p < 0.001$) (Table 3).

2. *Wayfinding Critical*: Poor pathway clarity linked to negative emotions ($r = 0.45$, $p = 0.012$).
3. *Spatial Simplicity*: Complex layouts reduce calmness ($r = -0.38$, $p = 0.021$).

Recommendation: Prioritize natural light, greenery, and intuitive navigation in Lekki's urban projects.

Table 1
Demographic distribution of respondents

Variable	Category	Frequency (n=196)	Percentage (%)
Gender	Male	122	62.4%
	Female	74	37.6%
Age Group	18–25	63	32.3%
	26–35	46	23.5%
	36–45	36	18.4%
	46–55	33	16.8%
	56+	18	9.0%
Occupation	Administrative Staff	49	25.1%
	Healthcare Provider	36	18.4%
	Patient/User	44	22.4%
	Visitor/Guest	46	23.5%
	Wellness Consultant	21	10.6%

Table 2
Perceptions of therapeutic design features (Mean $\pm$ SD, Scale: 1–5)

Feature	Mean Score	Standard Deviation	Interpretation
Spatial Layout	2.8	± 1.4	Neutral (Leans simple)
Sense of Calm	3.1	± 1.2	Moderately Calming
Clear Pathways	3.4	± 1.3	Slightly Agree
Nature Elements	4.2	± 0.9	Strongly Desired
Emotional Effect*	2.9	± 1.5	Neutral (Slight Negativity)
Support for Biophilic	3.7	± 1.1	Agree

*Emotional Effect: 1=Very Negative, 3=Neutral, 5=Very Positive

Table 3
Pearson correlation between key variables

Variable Pair	r-value	p-value	Interpretation
Nature Elements $\leftrightarrow$ Sense of Calm	0.62	<0.001	Strong Positive
Clear Pathways $\leftrightarrow$ Emotion	0.45	0.012	Moderate Positive
Spatial Layout $\leftrightarrow$ Calm	-0.38	0.021	Moderate Negative

Significance at $p < 0.05$

Table 4
Independent samples t-test (Group differences)

Comparison	t-value	p-value	Effect Size (Cohen's d)
Gender (Sense of Calm)	2.34	0.020	0.42 (Small-Medium)
Occupation (Nature Elements)	3.12	0.002	0.65 (Medium)
Visit Frequency (Emotion)	2.89	0.004	0.53 (Medium)

Healthcare Providers rated nature elements higher than Administrative Staff, $p < 0.01$

Table 5
Top design priorities by stakeholder group

Stakeholder	Top 3 Needs	Mean Importance (1–5)
Healthcare Providers	1. Hygiene-compliant surfaces	4.6 ± 0.5
	2. Staff respite zones	4.3 ± 0.7
	3. Clear patient pathways	4.5 ± 0.6
Residents/Users	1. Privacy-control balance	4.2 ± 0.8
	2. Access to natural light	4.7 ± 0.4
	3. Noise reduction	4.1 ± 0.9
Administrative Staff	1. Ergonomic workspaces	4.4 ± 0.6
	2. Visual outdoor connections	3.9 ± 1.0
	3. Stress-reducing break areas	3.8 ± 1.1

Key Insight: Healthcare workers prioritize functionality, while residents value sensory comfort (Table 5)

Table 6
Proposed strategies and statistical support

Strategy	SPSS Evidence	Implementation Example
Biophilic Integration	$r = 0.62$ for calmness (Table 3)	Vertical gardens in 60% of communal spaces
Sensory Zoning	$t = 2.34$ for gender differences (Table 4)	"Calm zones" with acoustic buffers
Flexible Layouts	$r = -0.38$ for spatial complexity (Table 3)	Modular furniture in residential areas

Actionable Step: Pilot therapeutic walking loops (supported by pathway-emotion correlation, $r = 0.45$)

- b. *Objective 2: Stakeholder-Specific Perceptions*
- c. *Objective 3: Evidence-Based Design Strategies*

B. Conclusion

The SPSS analysis rigorously confirms that:

1. Nature integration and spatial clarity are statistically significant predictors of well-being ($p < 0.05$).
2. Stakeholder needs vary by occupation and age (Tables 4–5).
3. Gender-sensitive and function-specific designs are recommended for Lekki.

The quantitative analysis confirms that natural elements and spatial clarity are statistically significant predictors of wellbeing in therapeutic environments. Stakeholder preferences vary notably across groups, necessitating inclusive design approaches that address both functional and sensory needs. In Lekki, therapeutic architecture must prioritise biophilic design, wayfinding clarity, and adaptable spaces that reflect the diverse demands of its users.

4. Conclusion and Recommendations

The findings from this study clearly demonstrate that therapeutic architecture plays a measurable and significant role in enhancing user wellbeing within wellness centres in Lekki. The quantitative analysis confirms that the integration of biophilic elements, spatial clarity, and sensory-responsive designs are statistically linked to improved emotional states, greater calmness, and higher overall satisfaction among users. Notably, the study reveals that while nature-based features strongly correlate with stress reduction and positive emotions, complex or cluttered spatial layouts tend to diminish feelings of calm.

The study highlights important variations in design priorities among different stakeholder groups. Healthcare providers emphasise functionality, hygiene, and clear circulation routes, while users and residents place greater value on sensory comfort, privacy, and access to natural light. This underlines the need for therapeutic architecture in Lekki to adopt an inclusive, evidence-based, and user-centred design approach that responds to the diverse needs of all occupants.

A. Recommendations

1. *Integrate Biophilic Design as a Standard:* Future architectural developments in Lekki should prioritise the use of natural materials, indoor plants, green walls, and access to outdoor green spaces, as these elements have been shown to significantly enhance calmness and emotional wellbeing.
2. *Enhance Wayfinding and Spatial Simplicity:* Clear pathways and intuitive circulation must be incorporated into building layouts to reduce anxiety and support positive emotional responses. This can include visible landmarks, logical zoning, and minimal use of disorienting design elements.
3. *Design Gender-and Function-Sensitive Spaces:* The data indicate subtle differences in how males and females, as well as various professional groups,

experience therapeutic spaces. Design interventions should accommodate these differences through flexible layouts, varied sensory zones, and customisable features.

4. *Promote Modular and Adaptive Design Solutions:* Given the negative correlation between spatial complexity and user calmness, spaces should be designed to allow for easy reconfiguration, supporting evolving user needs while maintaining simplicity and clarity.
5. *Establish Pilot Wellness Loops and Therapeutic Gardens:* Urban planners and developers in Lekki should consider creating pilot projects, such as therapeutic walking loops and communal healing gardens, as part of residential and commercial schemes to promote mental health in the broader urban environment.
6. *Encourage Cross-Disciplinary Collaboration:* Architects should work closely with healthcare professionals, psychologists, and urban planners in the design of therapeutic spaces to ensure that interventions are holistic, practical, and impactful.

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