

Evaluating User Experience and Therapeutic Spatial Design in Southwestern Rehabilitation Centres: An Evidence-Based Architectural Assessment

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Abstract

Rehabilitation centres provide therapeutic environments that can influence patients' recovery, well-being, and overall experience. However, inadequate integration of therapeutic architectural principles may limit their restorative potential. This study evaluates the therapeutic spatial design of selected purpose-built rehabilitation centres in Southwestern Nigeria. A descriptive and evaluative research design was adopted, using structured questionnaires, site observations, and photographic documentation. Data were obtained from 290 respondents across four rehabilitation centres: Oyo State Rehabilitation Centre, Ibadan; Cadam Rehabilitation Centre, Epe; OAU Teaching Hospital Rehabilitation Centre, Ile-Ife; and Neuropsychiatric Hospital, Abeokuta. Findings showed that natural environment harmony, daylighting, and safety features recorded the highest ratings, while social spaces, recreational facilities, art integration, and patient-centred design recorded the lowest Physical Features Index scores. Mean PFI values ranged from 3.13 to 3.44, indicating moderate and uneven therapeutic performance. The study concludes that improved social spaces, art integration, patient-centred design, and systematic post-occupancy evaluation are needed to enhance therapeutic environments.

Keywords: Therapeutic Spatial Design, Rehabilitation Centres, User Experience, Built Environment, Healthcare Architecture

1.0 INTRODUCTION

The quality of the built environment has become an increasingly critical dimension of healthcare delivery, particularly within specialized rehabilitation settings. Research across architecture, environmental psychology, and health sciences consistently demonstrates that physical space is not a passive backdrop to clinical practice it is an active determinant of patient outcomes, recovery trajectories, and overall well-being (Ulrich et al., 2018; Chrysikou, 2019). As the global burden of chronic non-communicable diseases rises and mental health disorders receive greater clinical recognition, the design of rehabilitation environments has attracted substantial scholarly attention (Global Burden of Disease, 2019). Central to this discourse is the concept of therapeutic spatial design an architectural approach that deliberately integrates elements such as natural light, biophilic features, spatial organization, sensory control, and restorative materiality to support healing (Cho, 2023). These principles, grounded in evidence-based design, reflect a shift in healthcare architecture from purely functional planning toward environments that actively promote psychological comfort, physical recovery, and psychosocial resilience.

Rehabilitation centres occupy a distinctive position within the healthcare continuum. Unlike acute hospitals focused primarily on immediate clinical intervention, rehabilitation facilities are long-term environments in which patients engage in sustained physical, psychological, and social recovery processes. This extended duration of occupancy amplifies the influence of spatial qualities on user experience. Studies have demonstrated that features such as access to nature, acoustic comfort, spatial hierarchy, daylighting, and calming colour palettes can meaningfully reduce patient anxiety, improve compliance with rehabilitation programmes, and enhance overall satisfaction with care (Huisman et al., 2015; Marcus and Francis, 2015). Furthermore, the users of rehabilitation centres extend beyond patients alone caregivers, clinical staff, and visitors are also exposed to and affected by the spatial environment on a daily basis. The therapeutic quality of a space must therefore be evaluated across this diverse spectrum of occupants, with attention to how architectural features translate into lived experience (Andrade et al., 2016; Franco et al., 2017).

In the Nigerian context, however, the integration of therapeutic spatial principles into rehabilitation centre design remains underexplored. Existing literature on healthcare infrastructure in Nigeria has predominantly focused on the availability and adequacy of clinical facilities, medical staffing, and service delivery frameworks, often to the exclusion of the physical environment as a variable of interest (Shirazikhah et al., 2021; Abimbola, 2015). Where architectural studies do exist, they tend to address broader healthcare settings rather than the specific typology of the rehabilitation centre, and few have systematically evaluated user experience as a function of spatial design quality. This gap is particularly significant in the Southwestern geopolitical zone, where urbanization pressures including high noise levels, limited green space, infrastructural disruption, and overcrowding create environmental stressors that directly undermine the restorative potential of therapeutic space (Oyedepo, 2015; Amole, 2017). The absence of evidence-based design frameworks tailored to these conditions restricts the capacity of facility planners and architects to develop environments genuinely responsive to patient needs.

A further limitation in the existing body of work concerns the absence of systematic building performance evaluation applied to rehabilitation environments. Without structured assessment of how therapeutic features function in use as perceived and experienced by actual occupants designers and healthcare administrators lack the feedback necessary to refine spatial strategies or justify investment in environment-centred design interventions

(Okolie and Shakantu, 2023). The relationship between specific architectural elements and user satisfaction has been examined in isolation across various international studies (Lawson and Phiri, 2018; Ulrich et al., 2020), yet an integrated, empirical assessment of this relationship across multiple rehabilitation facilities within a single urban Nigerian context has not been conducted. This constitutes a significant evidence gap, particularly given the growing policy emphasis on improving the quality of rehabilitation services in Nigeria and the documented influence of built environment quality on health outcomes.

Against this background, there is a compelling need for empirical research that directly evaluates therapeutic spatial design as experienced by the users of rehabilitation centres in Southwestern Nigeria. Such evaluation is essential for understanding how existing spatial features shape recovery-supportive experiences, where deficiencies exist, and how design interventions can be calibrated to the region's specific social, climatic, and infrastructural conditions. This study therefore evaluates the therapeutic architectural features present in selected rehabilitation centres across Southwestern Nigeria specifically examining how users experience these features and the extent to which current spatial conditions align with evidence-based therapeutic design principles. By assessing user perceptions across a range of facility types and locations, the study generates evidence-based insights that contribute to the development of contextually responsive design frameworks for rehabilitation environments in urban Nigeria.

II. LITERATURE REVIEW

2.1 Concept and Evolution of Therapeutic Architectural Design in Healthcare

Therapeutic architectural design has its roots in ancient healing traditions that recognized the restorative power of space and nature. Greek healing sanctuaries at Epidaurus integrated tranquil natural settings with medical ritual, reflecting an early intuition that environment shapes recovery (Sharma et al., 2017). This understanding was revived in the 19th century through Florence Nightingale's documented emphasis on fresh air, natural light, and quiet as essential determinants of patient health (Hall, 2019). The formal scientific basis for therapeutic design emerged with Roger Ulrich's landmark 1984 study, which demonstrated that surgical patients with views of nature recovered faster and required less medication than those without a finding that catalyzed the development of Evidence-Based Design as a discipline (Ulrich, 2014). EBD systematically integrates empirical research into architectural decision-making to optimize health outcomes, and has since grown into a globally recognized framework for healthcare facility design (Hamilton, 2019; Cama, 2020). Over time, the philosophy of healthcare architecture has shifted decisively from purely clinical infrastructure toward environments conceived as active instruments of healing, a shift with particular relevance for rehabilitation centres, where patients spend extended periods and spatial quality directly shapes recovery trajectories (Chrysikou, 2019).

2.2 Therapeutic Spatial Features in Rehabilitation Centres

Therapeutic spatial features are the specific design elements that create recovery-supportive environments within rehabilitation settings. Research identifies a consistent core set of these features. Natural light and biophilic integration including views of nature, planting, natural materials, and outdoor access are among the most robustly evidenced, with Huisman et al. (2015) demonstrating their positive impact on patient mental health, and Kellert (2008) providing the theoretical basis through Biophilic Design Theory. Acoustic quality is equally critical; noise management through spatial zoning and material selection directly affects

patient comfort and therapeutic concentration (Joseph et al., 2019). Colour environment and sensory articulation the deliberate use of warm tones, tactile variety, and controlled lighting contribute to a non-institutional atmosphere that reduces anxiety and supports emotional comfort (Morgenthaler, 2016; John and Tammy, 2017). Spatial organization, encompassing circulation clarity, privacy provision, and the configuration of social and individual spaces, shapes patient dignity and therapeutic engagement (Marcus and Francis, 2015; Shepley et al., 2016). Artwork integration, recreational facilities, and safety provisions complete the therapeutic feature set, each with documented contributions to patient well-being and recovery (Nanda et al., 2017; Zulkarnain et al., 2021). In Nigeria, however, many rehabilitation facilities are not purpose-built and lack deliberate integration of these features, limiting their therapeutic potential (Adebayo et al., 2019).

2.3 User Experience and Satisfaction in Therapeutic Environments

User experience in therapeutic environments is shaped by the degree to which spatial features align with the perceptual and psychological needs of occupants. Research in environmental psychology consistently links patients' subjective assessments of their spatial environment encompassing perceived comfort, privacy, control, and access to nature to measurable differences in satisfaction and recovery outcomes (Taylor, 2022; Collier et al., 2016). Patient-centered care theory further positions the built environment as a direct contributor to empowerment and well-being, arguing that spaces must be designed around individual users' lived experiences rather than clinical convenience alone (Smith and Davidson, 2017; Johnson et al., 2019). Studies by Lawson and Phiri (2018) and Ulrich et al. (2020) have demonstrated that specific features spatial organization, acoustic privacy, daylighting, and room configuration correlate significantly with patient-reported stress levels and overall satisfaction with care. Critically, the user population of rehabilitation centres extends beyond patients to include caregivers, clinical staff, and visitors, all of whom are affected by spatial quality on a daily basis (Andrade et al., 2016; Franco et al., 2017). Without systematic evaluation of how these diverse users experience existing therapeutic features, facility managers and designers lack the evidence base needed to improve spatial quality or demonstrate its value.

2.4 Challenges of Therapeutic Design in Nigerian Rehabilitation Centres

The application of therapeutic design principles in Nigerian rehabilitation centres faces persistent structural and contextual constraints. At the institutional level, chronic underfunding has directed capital investment toward basic clinical capacity rather than spatial quality, resulting in a built stock that prioritizes function over user experience (Abimbola, 2015; Shirazikhah et al., 2021). Many existing facilities were not purpose-built as rehabilitation environments and have not been designed with evidence-based therapeutic principles in mind (Adebayo et al., 2019). In the Southwestern region, and Lagos in particular, rapid urbanization compounds these challenges: high ambient noise levels, limited green space, overcrowding, and infrastructural disruption create environmental stressors that directly undermine the restorative potential of rehabilitation settings (Oyedepo, 2015; Amole, 2017). Jennings and Bamkole (2019) have documented the mental health implications of green space scarcity in Nigerian urban contexts, underscoring the heightened need for compensatory therapeutic design. Beyond physical constraints, the absence of systematic building performance evaluation (BPE) in Nigerian healthcare facilities means that the gap between design intent and actual user experience remains unquantified and unaddressed (Okolie and Shakantu, 2023). These combined limitations demonstrate the urgent need for

empirical, user-centred assessment of therapeutic spatial quality in Southwestern Nigerian rehabilitation settings.

2.5 International Best Practice and Case Studies

Global exemplars of therapeutic rehabilitation design provide instructive models for contextually adapting evidence-based spatial principles. Rehabilitation Centre Groot Klimmendaal in the Netherlands demonstrates the integration of biophilic design at a facility-wide scale, with extensive glazing, internal gardens, and material continuity between interior and natural surroundings features associated with measurably reduced patient anxiety and enhanced rehabilitation motivation (Velsen, 2016). In the United States, Hazelden Betty Ford Foundation facilities illustrate how therapeutic community principles can be encoded spatially, with structured social spaces, privacy hierarchies, and outdoor access supporting peer interaction and sustained recovery engagement (Hazelden Betty Ford Foundation, n.d.). Internationally, modern rehabilitation centres also increasingly incorporate daylighting strategies, flexible spatial organization, acoustic zoning, and nature-inspired materiality as standard design provisions design moves that reflect the integration of EBD principles into mainstream healthcare architecture (Day and O'Brien, 2017; Carvalho, 2021). In contrast, most rehabilitation facilities in Southwestern Nigeria remain static in design approach, lacking the biophilic integration, acoustic management, and user-centred spatial organization that international evidence identifies as essential to effective therapeutic environments (Amole, 2017; Ghazali and Abbas, 2012). Bridging this gap requires both empirical evaluation of existing conditions and the development of contextually responsive design frameworks grounded in user experience.

2.6 Theoretical Framework and Research Gap

This study is guided by three theoretical frameworks. The first is Evidence-Based Design (EBD), which holds that architectural decisions should be grounded in empirical research linking spatial features to occupant outcomes (Hamilton, 2019). EBD provides the evaluative philosophy of this study, directing attention to whether existing therapeutic features in Nigerian rehabilitation centres align with what research evidence identifies as recovery-supportive. The second is Biophilic Design Theory (Kellert, 2008), which recognizes humans' innate connection with nature and provides the basis for evaluating natural light, green space access, and nature-integrated design as therapeutic spatial features. The third is Environmental Psychology, which examines how the physical environment influences human emotion, behaviour, and well-being (Jones and Smith, 2016; Taylor, 2022), informing the study's attention to how acoustic conditions, colour, spatial organization, and privacy are perceived and experienced by rehabilitation centre users. Despite a growing international body of research on therapeutic spatial design, there remains limited empirical work addressing rehabilitation environments in Nigeria. Previous studies have focused predominantly on clinical service delivery and medical outcomes, with minimal systematic attention to user experience of the physical environment (Shirazikhah et al., 2021; Abimbola, 2015; Ghazali and Abbas, 2012). No study has conducted an integrated, multi-site evaluation of therapeutic spatial features across purpose-built rehabilitation centres in Southwestern Nigeria. This study addresses that gap by generating user-centred, evidence-based insights that can inform the development of contextually responsive therapeutic design frameworks for rehabilitation environments in urban Nigeria.

III. METHODOLOGY

A descriptive and evaluative research design was adopted, combining quantitative and qualitative approaches to systematically assess the therapeutic spatial features present in selected rehabilitation centres across Southwestern Nigeria. The quantitative strand involved structured questionnaires administered to users including outpatients, caregivers, and clinical staff to capture their perceptions of key therapeutic architectural elements such as natural lighting, spatial layout, ventilation, acoustic quality, access to green spaces, and colour environment. The qualitative strand comprised direct site observations and photographic documentation, enabling a cross-referential assessment of the physical conditions of each facility against established evidence-based design principles. Secondary data were drawn from peer-reviewed literature, WHO healthcare environment guidelines, and architectural planning documents relevant to the design and evaluation of therapeutic rehabilitation environments.

The study focused on purpose-built rehabilitation centres in Southwestern Nigeria specifically facilities deliberately designed to accommodate therapeutic spatial features rather than adapted or repurposed structures. A multistage sampling technique was employed. In the first stage, the six states of the Southwest geopolitical zone (Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo) were identified as the study frame. A total of sixty-nine (69) registered rehabilitation centres were recorded across the region, drawn from Federal Ministry of Health records (2024). These were stratified by ownership type- Federal, State, and Private- to ensure balanced representation. Purposive selection was then applied to identify centres with identifiable purpose-built therapeutic facilities, yielding four study sites: Oyo State Rehabilitation Centre, Adeoyo, Ibadan (Oyo State); Cadam Rehabilitation Centre, Epe (Lagos State); Obafemi Awolowo University Teaching Hospital Rehabilitation Centre, Ile-Ife (Osun State); and Neuropsychiatric Hospital, Abeokuta (Ogun State).

The sample size was determined using Slovin's formula, applied to a total user population of 1,050 average weekly visitors across the four selected centres, at a 95% confidence level (margin of error = 0.05):

$$n = N / (1 + Ne^2)$$

$$n = 1050 / (1 + 1050 \times 0.05^2) = 1050 / 3.625 \approx 290$$

A sample size of 290 respondents was therefore obtained, distributed proportionally across the four facilities as shown in Table 1 below.

Table 1: Sample Size Distribution Across Study Sites

S/N	Rehabilitation Centre	State	Patient Population	Sample Size (28%)
1	Oyo State Rehabilitation Centre, Adeoyo, Ibadan	Oyo	200	55
2	Cadam Rehabilitation Centre, Epe	Lagos	250	69
3	OAU Teaching Hospital Rehabilitation Centre, Ile-Ife	Osun	300	83
4	Neuropsychiatric Hospital, Abeokuta	Ogun	300	83
Total			1,050	290

Source: Author's Field Survey and Compilation (2026)

Questionnaires were administered in person at each facility, ensuring adequate response rates and enabling on-site clarification where required. Data were analyzed using descriptive statistics including frequency counts, percentages, and mean scores derived from a five-point Likert scale, through which respondents rated their experience of specific therapeutic spatial features. Site observation findings were recorded via structured checklists and cross-referenced with questionnaire responses to triangulate user perceptions against physical conditions. This integrated analytical approach enabled a robust evaluation of how therapeutic architectural features are currently experienced by users in Southwestern Nigerian rehabilitation centres, and provided the empirical basis for identifying design improvement priorities

IV. RESULTS AND DISCUSSION

4.1.1 Users' Experiences in Oyo State Rehabilitation Centre, Adeoyo Ring Road, Ibadan

Table 2 evaluates users' experiences with various therapeutic architectural features at the Oyo State Rehabilitation Centre, Adeoyo Ring Road, Ibadan. The ranking order is determined by the Total Weight Value (TWV) and respondents' ratings on a scale from 1 to 5, focusing on their experiences with these features, PFI means Physical Features Index. The top-ranked feature, "Natural daylight and ventilation are sufficient" (TWV = 220, PFI = 3.86), underscores the importance of natural elements in creating a conducive environment. This is followed closely by "The choice of colors enhances the therapeutic environment" (TWV = 219, PFI = 3.84), suggesting that color schemes play a critical role in emotional and psychological well-being. Features like "Open Spaces" and "Windows and Views" (TWV = 218 and 217, respectively) emphasize the positive impact of open and visually engaging surroundings. These high rankings indicate that elements integrating nature and aesthetics significantly contribute to users' satisfaction.

Conversely, features like "Social spaces support interaction and a sense of community" (TWV = 124, PFI = 2.18) and "Recreational facilities are available and adequate" (TWV = 128, PFI = 2.25) rank lowest, reflecting users' dissatisfaction or lower prioritization of these aspects. Similarly, the "Application of art enhances the therapeutic

environment" and "The design prioritizes patient-centered care" also received low scores, with TWVs of 132 and 136, respectively. These findings suggest a need for improvement in integrating community-oriented spaces, recreational activities, and artistic elements into the architectural design. Overall, the ranking highlights a strong preference for environmental harmony and natural features while underscoring areas that require enhancement to align with users' therapeutic needs.

Table 2 Users' Experiences on Oyo State Rehabilitation Centre, Adeoyo Ring Road, Ibadan, Oyo State

S/N	Therapeutic Architectural features	Level of Respondents' Experiences					N	TWV _(b)	TWV/n= PFI _(y)
		5	4	3	2	1			
1	Natural daylight and ventilation are sufficient.	22	20	5	5	5	57	220	3.86
2	The choice of colors enhances the therapeutic environment.	17	25	5	9	1	57	219	3.84
3	Open Spaces (Availability of outdoor spaces or gardens)	19	20	10	5	3	57	218	3.82
4	Windows and views contribute positively to recovery.	21	15	12	7	2	57	217	3.81
5	The center is free from negative distractions.	20	21	5	7	4	57	217	3.81
6	The use of natural materials, such as timber, and stones, enhances harmony with the environment and provides warmth and comfort.	24	15	6	6	6	57	216	3.79
7	Pleasant smells contribute to the comfort of patients.	11	30	10	4	2	57	215	3.77
8	Courtyards.	17	22	8	6	4	57	213	3.74
9	The center's design harmonizes with the natural environment.	19	18	9	8	3	57	213	3.74
10	The building has a home-like appearance.	19	15	14	6	3	57	212	3.72
11	Safety and security are ensured in all parts of the center.	12	15	20	10	0	57	200	3.51
12	The design is flexible and adaptable to users' needs.	9	23	15	4	6	57	196	3.44
13	The design prioritizes patient-centered care.	7	2	11	23	14	57	136	2.39
14	The application of art enhances the therapeutic environment.	8	5	4	20	20	57	132	2.32
15	Recreational facilities are available and adequate.	1	11	8	18	19	57	128	2.25
16	Social spaces support interaction and a sense of community.	5	3	10	18	21	57	124	2.18
Average									53.99/16
Mean deviation									3.37

Source: Author's Field Survey, (2026)

4.1.2 Users' Experiences in Cadam Rehabilitation Centre, Epe Lagos

Table 3 focuses on users' experiences with therapeutic architectural features at the Cadam Rehabilitation Centre in Epe, Lagos State, ranked according to Total Weight Value (TWV) Physical Features Index (PFI). The highest-ranked feature, "The choice of colours enhances the therapeutic environment" (TWV = 232, PFI = 3.63), highlights the importance

of using colours to create a calming and supportive user atmosphere. "Safety and security are ensured in all parts of the centre" follows as the second-highest-ranked feature (TWV = 224, PFI = 3.50), showing the critical role of secure and safe facilities in fostering a sense of comfort for patients. "The design is flexible and adaptable to users' needs" (TWV = 222, PFI = 3.47) ranks third, reflecting users' appreciation of spaces that accommodate changing therapeutic requirements. The mid-ranked features, such as "Open Spaces" (TWV = 220, PFI = 3.44) and "The use of natural materials" (TWV = 220, PFI = 3.44), emphasize the significance of natural elements and open spaces in enhancing the healing process.

On the other hand, the lowest-ranked features reveal areas of dissatisfaction or underutilization. "The design prioritizes patient-centred care" (TWV = 159, PFI = 2.48) is ranked lowest, indicating that users feel the design does not adequately address individual patient needs. Similarly, "The application of art enhances the therapeutic environment" (TWV = 164, PFI = 2.56) and "Social spaces support interaction and a sense of community" (TWV = 168, PFI = 2.63) received low scores, suggesting limited attention to artistic integration and communal interaction. Recreational facilities and pleasant smells also ranked poorly, with TWVs of 173 and 179, respectively. These findings highlight a disparity between well-received natural and safety-oriented features and the underperforming communal, recreational, and sensory aspects, suggesting targeted improvements to align the centre's design with users' broader therapeutic needs.

Table 3: Users' Experiences on Cadam Rehabilitation Centre, Epe Lagos-State

S/N	Therapeutic Architectural features	Level of Respondents' Experiences					N	TWV _(b)	TWV/n= PFI _(y)
		5	4	3	2	1			
1	The choice of colors enhances the therapeutic environment.	24	16	8	8	8	64	232	3.63
2	Safety and security are ensured in all parts of the center.	20	17	12	5	10	64	224	3.50
3	The design is flexible and adaptable to users' needs.	10	24	20	6	4	64	222	3.47
4	Open Spaces (Availability of outdoor spaces or gardens)	14	20	15	10	5	64	220	3.44
5	The use of natural materials, such as timber, and stones, enhances harmony with the environment and provides warmth and comfort.	10	24	18	8	4	64	220	3.44
6	Natural daylight and ventilation are sufficient.	3	35	10	15	1	64	216	3.38
7	The center's design harmonizes with the natural environment.	19	14	11	11	9	64	215	3.36
8	The center is free from negative distractions.	17	18	5	12	12	64	208	3.25
9	Courtyards.	10	18	17	12	7	64	204	3.19
10	The building has a home-like appearance.	11	19	16	7	11	64	204	3.19
11	Windows and views contribute positively to recovery.	2	26	16	14	6	64	196	3.06
12	Pleasant smells contribute to the comfort	15	5	10	20	14	64	179	2.80

	of patients.										
13	Recreational facilities are available and adequate.	8	9	14	22	11	64	173		2.70	
14	Social spaces support interaction and a sense of community.	3	9	25	15	12	64	168		2.63	
15	The application of art enhances the therapeutic environment.	0	10	20	30	4	64	164		2.56	
16	The design prioritizes patient-centered care.	2	3	28	22	9	64	159		2.48	
	Average									50.08/16	
	Mean deviation									3.13	

Source: Author's Field Survey, (2026)

4.1.3 Users' Experiences on OAU, Teaching Hospital Rehabilitation Centre, Ile-Ife, Osun-State

Table 4 evaluates users' experiences with therapeutic architectural features at the OAU Teaching Hospital Rehabilitation Centre, Ile-Ife, Osun State, with rankings based on Total Weight Value (TWV) and Physical features Index (PFI). The highest-ranked feature, "Social spaces support interaction and a sense of community" (TWV = 307, PFI = 3.79), indicates the importance of fostering communal engagement and connection among users for therapeutic benefits. Following this, "The building has a home-like appearance" (TWV = 299, PFI = 3.69) and "The centre's design harmonizes with the natural environment" (TWV = 297, PFI = 3.67) rank second and third, respectively, emphasizing the value of familiar and nature-integrated designs. Features like "Safety and security" (TWV = 295, PFI = 3.64) and "Pleasant smells" (TWV = 289, PFI = 3.57) also score highly, reflecting their role in creating a comfortable and secure environment.

On the other hand, features such as "The design prioritizes patient-centred care" (TWV = 199, PFI = 2.46) and "The use of natural materials" (TWV = 239, PFI = 2.95) rank lower, pointing to gaps in individualized care and material selection to enhance harmony with the environment. Despite its potential impact, "Open Spaces" ranks relatively low (TWV = 231, PFI = 2.85), alongside "The choice of colours" and "Courtyards," suggesting these features might be underutilized or not fully appreciated by users. Similarly, "Recreational facilities" (TWV = 252, PFI = 3.11) and "The application of art" (TWV = 255, PFI = 3.15) rank mid-to-low, signalling opportunities for improvement in integrating engaging and aesthetically pleasing elements. Overall, the ranking highlights a strong preference for communal, home-like, and safety-focused features while suggesting the need for better implementation of natural, recreational, and personalized design aspects to meet therapeutic goals more comprehensively.

Table 4: Users' Experiences on OAU, Teaching Hospital Rehabilitation Centre, Ile-Ife, Osun-State

S/N	Therapeutic Architectural features	Level of Respondents' Experiences					N	TWV _(b)	TWV/n= PFI _(Y)
		5	4	3	2	1			
1	Open Spaces (Availability of outdoor spaces or gardens)	10	15	20	25	11	81	231	2.85
2	Courtyards.	5	20	15	30	11	81	221	2.73
3	Windows and views contribute positively to recovery.	12	18	30	15	6	81	258	3.19
4	The design is flexible and adaptable to users' needs.	8	22	25	18	8	81	247	3.05
5	The choice of colors enhances the therapeutic environment.	15	15	15	15	21	81	231	2.85
6	Social spaces support interaction and a sense of community.	26	26	18	8	3	81	307	3.79
7	Safety and security are ensured in all parts of the center.	21	30	15	10	5	81	295	3.64
8	The design prioritizes patient-centered care.	29	18	12	12	10	81	199	2.46
9	The center's design harmonizes with the natural environment.	21	28	20	8	4	81	297	3.67
10	Natural daylight and ventilation are sufficient.	23	22	14	14	8	81	281	3.47
11	Pleasant smells contribute to the comfort of patients.	20	27	19	9	6	81	289	3.57
12	The center is free from negative distractions.	15	30	26	9	1	81	292	3.60
13	The building has a home-like appearance.	20	29	22	7	3	81	299	3.69
14	Recreational facilities are available and adequate.	9	18	36	9	9	81	252	3.11
15	The application of art enhances the therapeutic environment.	11	30	15	20	5	81	255	3.15
16	The use of natural materials, such as timber, stones, enhances harmony with the environment and provides warmth and comfort.	8	18	25	22	8	81	239	2.95
Average									51.77/16
Mean deviation									3.24

Source: Author's Field Survey, (2026)

4.1.4 Users' Experiences in Neuropsychiatric Hospital, Abeokuta, Ogun State

Table 5 presents a ranking of therapeutic architectural features based on respondents' experiences at the Neuropsychiatric Hospital, Abeokuta, Ogun State. The feature ranked highest is the harmony of the centre's design with the natural environment, which achieved the highest Total Weight Value (TWV) of 295 and a Physical Feature Index (PFI) of 3.55. This suggests that the integration of natural surroundings is critical in fostering a therapeutic atmosphere. The second most valued feature, with a TWV of 293 and PFI of 3.53, is the

home-like appearance of the building, indicating that familiarity and comfort in design significantly enhance user experience. Features such as the positive impact of windows and views on recovery, safety, and patient-centred care followed closely in rank, all sharing similar TWVs of 289 and PFI values of 3.48. These results underscore the importance of elements that create a secure, aesthetically pleasing, and recovery-focused environment.

Features ranked lower, such as the use of natural materials (ranked 10th with a TWV of 284 and PFI of 3.42) and flexibility of design (ranked 11th, TWV 283, PFI 3.41), highlight areas for improvement. Recreational facilities (14th, TWV 281, PFI 3.39) and natural daylight and ventilation (15th, TWV 279, PFI 3.36) also received relatively lower rankings, reflecting perceived inadequacies in these aspects. At the bottom of the list, the choice of colours enhancing the therapeutic environment, with the lowest TWV of 274 and PFI of 3.30, suggests that this element is less impactful or perhaps underemphasized in the current setup. The data collectively emphasizes that while certain aspects of the hospital's design resonate strongly with the respondents, others require attention to elevate the overall therapeutic experience.

Table 5: Users' Experiences in Neuropsychiatric Hospital, Abeokuta, Ogun State

S/N	Therapeutic Architectural features	Level of Respondents' Experiences					N	TWV _(b)	TWV/n= PFI _(Y)
		5	4	3	2	1			
1	The centre's design harmonizes with the natural environment.	29	20	13	10	11	83	295	3.55
2	The building has a home-like appearance.	30	20	9	12	12	83	293	3.53
3	Windows and views contribute positively to recovery.	30	18	10	12	13	83	289	3.48
4	Safety and security are ensured in all parts of the centre.	25	25	10	11	12	83	289	3.48
5	The design prioritizes patient-centered care.	27	21	12	11	12	83	289	3.48
6	Pleasant smells contribute to the comfort of patients.	26	23	10	13	11	83	289	3.48
7	The application of art enhances the therapeutic environment.	27	19	14	11	12	83	287	3.46
8	Social spaces support interaction and a sense of community.	28	17	15	10	13	83	286	3.45
9	Open Spaces (Availability of outdoor spaces or gardens)	25	20	15	12	11	83	285	3.43
10	The use of natural materials, such as timber, and stones, enhances harmony with the environment and provides warmth and comfort.	23	25	11	12	12	83	284	3.42
11	The design is flexible and adaptable to users' needs.	26	19	12	15	11	83	283	3.41
12	The centre is free from negative distractions.	24	24	11	10	14	83	283	3.41
13	Courtyards.	24	21	14	12	12	83	282	3.40
14	Recreational facilities are available and adequate.	21	24	15	12	11	83	281	3.39

15	Natural daylight and ventilation are sufficient.	23	22	12	14	12	83	279	3.36
16	The choice of colours enhances the therapeutic environment.	22	23	10	14	14	83	274	3.30
Average									55.03/16
Mean deviation									3.44

Source: Author's Field Survey, (2026)

5. CONCLUSION AND RECOMMENDATIONS

This study centres on the interpretation of responses obtained from selected rehabilitation centres in Southwest Nigeria, focusing on users' experiences of therapeutic spatial design. The goal is to identify existing strengths and shortcomings by systematically analysing survey data on key therapeutic architectural features, user wellbeing, and overall perceptions of the rehabilitation environment. By examining both quantitative measures and qualitative feedback, the assessment highlights how users interact with and respond to therapeutic spaces. This evaluation provides valuable insights to guide future design improvements and ensure that rehabilitation facilities better support the recovery needs and wellbeing of their users.

The study concluded that the selected rehabilitation centres in Southwestern Nigeria demonstrated some important therapeutic spatial qualities, particularly in natural environment harmony, home-like appearance, daylighting, and safety provisions. However, notable gaps remained in the provision of communal spaces and recreational facilities, as well as in the integration of artwork and patient-centred design across the four study centres. The mean Physical Features Index scores across the facilities (Oyo State: 3.37; Cadam, Lagos: 3.13; OAU Teaching Hospital: 3.24; Neuropsychiatric Hospital, Abeokuta: 3.44) indicate moderate overall therapeutic spatial performance, with consistent underperformance in social interaction spaces, recreational amenities, and art integration. These findings reveal a gap between the evidence-based therapeutic design standards documented in international literature and the spatial conditions currently experienced by users in Southwestern Nigerian rehabilitation settings. The study therefore recommends the following:

- i. Rehabilitation centre administrators and facility planners should prioritize the integration of biophilic design elements including landscaped courtyards, planted internal spaces, and unobstructed window views to reinforce the natural environment harmony that users across all four sites ranked among their highest-valued therapeutic features.
- ii. Purpose-built social and recreational spaces, including communal areas, activity rooms, and outdoor spaces, should be provided in the design and renovation of rehabilitation centres. This is necessary because these facilities recorded relatively low scores across the four study sites.
- iii. Therapeutic artworks such as murals, paintings, and other visual elements should be incorporated into circulation areas, waiting spaces, and therapy rooms. Greater attention should be given to the Oyo State and Cadam Rehabilitation Centres, where the assessment showed lower performance in this area.
- iv. Patient-centred spatial design principles should be embedded throughout the planning and briefing process for rehabilitation facilities, ensuring that spatial layouts, room configurations, privacy provisions, and wayfinding systems are organized around the

experiential and therapeutic needs of diverse user groups including patients, caregivers, and clinical staff.

- v. Policy-makers and healthcare infrastructure agencies in Nigeria should establish systematic post-occupancy evaluation (POE) frameworks for rehabilitation facilities, ensuring that user perceptions of therapeutic spatial quality are regularly assessed and used to guide evidence-based design improvements and resource allocation decisions.

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