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Therapeutic architectural approach to the design of drug rehabilitation centre in Nigeria

Ikenna Henry Nkwopara [1*], Solomon Oisasoje Ayo-Odifiri [2], Nelson Unegbu Okehielem [3], Miriam Ijeoma Chukwuma-Uchegbu [4]
[1-4] Department of Architecture, Federal University of Technology Owerri, Nigeria

* Corresponding Author: **Ikenna Henry Nkwopara**

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Abstract
Drug de-addiction and rehabilitation strives to provide psychological assistance and medical care to attain permanent abstinence from illicit drugs and psychotropic substances, instead of exclusively eradication of physical drug dependence. Many rehabilitation centres in Nigeria adopt arrest and detention approach in the treatment of drug addicts instead of therapeutic measures. Owing to the dearth of drug rehabilitation and treatment options in Nigeria, which include lack of detoxification, psychotherapy, and meditation programs, new drug addicts who are released from detention camps go back into society as nuisance with a high risk of relapsing. To support the emerging rehabilitation trend for drug addicts, this study aims to examine the therapeutic architecture approach to develop an atmosphere for healing. Cross-literature technique was adopted to elicit data from purposively selected rehabilitation centres. The results of this study reveal the significance of architecture in supporting drug-addiction therapy, by designing a therapeutic facility for accommodation, treatment, social interaction, confinement and education, as well as an atmosphere to re-unite addicts with the society minimum professional assistance.

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1. Introduction

Drug addiction is an intense desire to consume drugs despite the risks. All addictive substances produce intense emotions of pleasure and satisfaction, even though each one has unique acute effects. The use of addictive drugs can result in adaptive changes like tolerance (high dose needed to maintain same effect), and when the drug is stopped suddenly, withdrawal symptoms occur. However, drug rehabilitation becomes the remedy for de-addiction through medical or psychotherapeutic treatments. The issue of drug addiction among youth in Nigeria has been inadequately addressed by both military and civilian administrations since independence (Sulaiman, 2012) [12]. The United Nations Office of Drugs and Crimes (UNODC, 2023) [13] national survey revealed that in 2022, about 15% (14.3 million) of Nigerian adults were reported using illicit drugs. The report forecasts that by 2030, drug use will have increased by 40% in Nigeria and all over Africa in relation to the predicted 11% increase worldwide. This is a disturbing concern pace for a developing country like Nigeria. The survey added that the most prevalent age group for drug abuse was age 25 to 39, with cannabis being the most commonly used drug (UNODC, 2023) [13].

Majority of young people who are drug addicts are now forcefully detained in cells and camps by the National Drug Law Enforcement Agency (NDLEA) across the nation. The goal of this is to remove the detainees' physical dependence on drugs in a hostile environment. Upon their release, the detainees are returned to society as nuisance and are likely to turn to drugs again. This agree with the results of earlier researchers' sociological evaluation of the NDLEA's arrest and imprisonment tactics, which is impractically for significant illicit drugs control and the rehabilitation of addicts in Nigeria (Egbuchulam, 2023) [2]. UNODC (2023) [13] conducted a study on illicit drug abuse in Nigeria that uncovered gaps in the country's ability to treat and care for those with drug-related disorders. A self-perceived need for drug treatment was acknowledged by two thirds of high-risk

substance abusers. Roughly 40% of people who want drug treatment were unsuccessful to get access to these programs.

The main challenges to receiving drug treatment in Nigeria include high cost, social and psychological stigmatisation (UNODC, 2023) [13]. Furthermore, there were inadequate drug treatment options available.

Therapeutic architecture is proposed to close the gap via designing a propose-built rehabilitation centre that accommodates and complements the overall process of healing and learning based on the aforementioned issues. Therapeutic architecture is the people-centred, evidence-based discipline of the built environment, which sees to identify and develop strategies of incorporating those spatial components that interact with people physiologically and psychologically into design (Chrysikou, 2014) [3]. The under listed therapeutic architecture concepts from the research of earlier scholars in the field of drug-addiction rehabilitation and therapeutic architecture are presented for adoption in the design of a drug rehabilitation facility.

1. **Harmonizing built structures with nature:** According to this concept, the goal of a therapeutic rehabilitation centre project should be to fit in with the surroundings in order to promote relaxation and serenity. A major component of the overall approach is nature, and as demonstrated by the Rehabilitation Centre Groot Klimmendaal by (Aliyu, *et al*., 2022) [7], the design should aim to bring natural surroundings indoors for the patients who are in the Rehab Centre.
2. **A biophilic environment supports in the rehabilitation process:** Humans have an innate desire to connect with nature and other living things, including plants, animals, and landscapes. Greener surroundings should be integrated into the design since they benefit patients (Huisman, 2012) [5].
3. **Maximizing natural daylight, ventilation, and views of nature in built structures:** According to Huisman (2012) [5], studied on how physical environmental factors affect those who use the healing environment has demonstrated that patients respond better to rooms with lots of light and ventilation than to those without. The findings indicated that architectural designs that integrate natural elements, such as internal and external landscapes, can significantly improve mental health outcomes for patients.
4. **Principles of privacy/access control, pleasing smell and colour application:** Other environmental elements, such as sound, colour, perspectives, smell, and light, can all be included into an architectural design to create a therapeutic atmosphere that is prominent for healing purposes (Morgenthaler, 2015) [9]. Experts agree that all of these are suitable for use in the design of mental health treatment facilities and rehabilitation canters. A patient should have a strong sense of control over their surroundings and circumstances in life. Being completely out of control is a disempowering and anxious feeling.
5. **Creating environments free from negative distractions and enriched with positive attractions:** Exploring therapeutic architecture and its integration into addiction rehabilitation, (John, 2014) [6] claims that both past and contemporary healing centre models support isolating patients from society in an effort to replace the unfavourable distractions of an urban lifestyle with the more appealing aspects of a rural one. This is thought to speed up the healing process for addicts.
6. **Establishing a nurturing, home-inspired setting:** Spaces should be built with elements found in our homes, such as furnishings, textures, accessories, and functions, to create a warm and welcoming atmosphere. The environment is advantageous since it is perceived as friendlier and provides the user with a comprehensive experience. The patient feels more at ease and experiences less social anxiety when they are in unfamiliar surroundings.

Unprecedentedly, patient wishes to go and stay at home because it is thought that there are many approaches to provide a homelike setting for mental health patients. As "First impressions are key to a home-like atmosphere," familiar settings and items that can vividly substitute an institutional feel to one's home experience are therefore taken into consideration in rehabilitation centre design (Aliyu, *et al*., 2022) [7]. Rehabilitation spaces should have finishes and furnishings that are more akin to domestic than institutional, such as cosy seating and leisure areas, pleasant colours, and natural lighting (Aliyu, *et al*., 2022) [7]. Furthermore, research has demonstrated that including elements of a home is highly recommended as best practice design for long-term care and mental health facilities. According to (Mousali, *et al*., 2021) [8], addicts who stay in mental health facilities for a length of time frequently experience sleep disorders, boredom, sadness, and depression because most of these facilities lack basic comforts and homey aspects. The aforementioned investigations all supported minimizing the institutionalized nature of rehabilitation canters; nevertheless, some specialists believed that the institutionalized appearance should be avoided by designing the canters to look like homes or residential spaces.

7. **Application of relaxation/ recreational facilities:** According to the findings of Ibrahem (2021) [1], one of the implementations from the precedent studies that he adopted in his research on the architecture of drug addiction rehabilitation was to include recreational facilities for addicts undergoing rehabilitation in indoor and outdoor spaces. Therefore, in order to prepare addicts for a gradual reintegration back to society, the implementation of special recreational facilities that is open to both patients and specific members of the community, which makes it an appropriate fit for this study's evaluation.
    - **Incorporating artwork into the environment:** Nanda *et al*. (2010) [10] study on the effects of visual art on patient anxiety and agitation in a mental health facility, a study was conducted on the relationship between art displays and patient anxiety in an acute-care psychiatric unit. The study found a significant positive correlation between the presence of realistic art displays and anxiety reduction. It is clear from the aforementioned studies and other researchers' conclusions that the rehabilitation centre design should adhere to the best recognized standards. All of the previously described ideas

were captured by the observation checklist designed for this study, and they were applied in the rehabilitation centre's suggested design.

- **Creating immersive sensory environment:** All the five human senses should be appealed to through the use of a variety of materials, textures, colours, and spatial arrangements in the design. Water features, healing gardens, and reflexology tracks are a few instances of spaces that support various sensory activities.

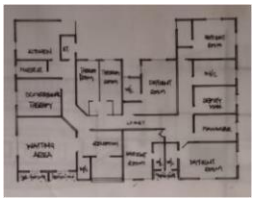
2. Methods

A case study research design was adopted to collect data for this study, and analysed using intent analysis. Purposive sampling was used to select the rehabilitation centres for study using a checklist from observation, sketches, and photographs. The selected facilities include Elpido Rehabilitation Centre Rivers State, Nigeria, Groot Klimmendaal the Netherlands, Sister Margaret Smith Addictions Treatment Centre Canada, and VA Palo Alto Rehabilitation Centre California for international case study regarding standard. The outcomes were applied to evolve the planning and design of an architectural therapeutic centre. Data were collected considering what had been achieved, and how the principles of therapeutic architecture were applied in the design and construction of the selected treatment centres. During the study, photographs and sketches were taken. The checklist of the case study comprises the principles of therapeutic architecture.

3. Results

Table 1 presents photographs of the applications of therapeutic architecture principles across the various case studies, and the extent to which these principles are applied in the design and construction of these facilities is presented in Table 2

Table 1: Comparative Analysis of 5 cases studied relative to their compliance with space report

Case Study 1 Rehabilitation Centre, Rivers State			
Case Study 2 Belmont Rehabilitation Centre, Australia			
Case Study 3 Rehabilitation Center Groot Klimmendaal, Netherlands			
Case Study 4 Sister Margaret Smith Addictions Treatment Center, Canada			
Case Study 5 VA Palo Alto rehabilitation center, California			

Source: Authors' investigation

Table 2 shows the results obtained on the level of applications of the eleven (11) principles of therapeutic architecture across the five (5) case studies. For each principle, the highest grade of application is selected as the best application. Where the highest grade is more than one for a particular principle, the two or more methods of application are harmonised to form the architectural solutions for adoption in the proposed design of the rehabilitation centre.

Table 2: Relative hierarchy of cases ranking as derived from Likert scale

SN	Principle of Therapeutic Architecture	Case Study 1 Rehabilitation Centre, Rivers State	Case Study 2 Belmont Rehabilitation Centre, Australia	Case Study 3 Rehabilitation Centre Groot Klimmendaal, Netherlands	Case Study 4 Sister Margaret Smith Addictions Treatment Centre, Canada	Case Study 5 VA Palo Alto rehabilitation centre, California
1	Harmonizing built structures with nature	Fair	Fair	Excellent	Very good	Very good
2	Biophilic environment	Good	Good	Excellent	Very good	Very good
3	Natural daylight, ventilation, and views of nature	Very good	Very good	Excellent	Very good	Very good
4	Privacy/access control, and color application	Good	Very good	Excellent	Very good	Very good
5	Isolation from negative distraction/ application of positive attractions	Good	Poor	Excellent	Very good	Excellent
6	Home-inspired setting	Very good	Fair	Excellent	Very good	Excellent
7	Relaxation/ recreational facilities	Good	Poor	Very good	Good	Very good
8	Application of art work	Poor	Poor	Excellent	Very good	Very good
9	Create a sensory environment	Poor	Poor	Very good	Good	Excellent

Source: Authors' creation

4. Discussion of Results

From Table 2 (cross-case analysis), the case studies revealed the level and mode of application of the established principles in the design of rehabilitation facility, and the extent to which the existing rehabilitation facilities have attained the application of therapeutic principles in their design and construction. It also shows the neglect of most of the principles, especially in case study 1 and 2 which proved the inefficiency and inability of the rehabilitation facilities to complement healing and rehabilitation process. Varied modes and levels of the application of therapeutic principles were identified -featuring the best applications for each of the principles. The highest mode of application for each of the principles was selected on each row in the Table 3 which showcases the selected best applications of the therapeutic principles extracted from Table 2, thereby introducing architectural solutions for adoption in the design of a rehabilitation centre. The architectural solutions are formulated by harmonising the best applications for each of the principles (i-xi) and localising the application to suit the context of this study as shown in Table 1 and 2.

To achieve a therapeutic rehabilitation environment, the architectural design proposal of this study employed the following steps as shown in Table 2;

1. Incorporation of existing physical features like vegetation and water bodies;
2. Use of large courtyards, cotton walls, generous glass use and therapeutic gardens around the premises;
3. Proper zoning of functional spaces and access restrictions through design;
4. Making use of the regular homey elements such as furniture and layouts; and
5. Provision of recreational facilities.

5. Conclusion and Recommendations

In order to use design to optimise a rehabilitation process, this study sought to apply therapeutic architecture concepts in the design of drug rehabilitation centre for Owerri, Nigeria. Based on the case studies, foreign rehabilitation centres, particularly, Rehabilitation Centre Groot Klimmendaal in the Netherlands effectively implemented most therapeutic ideas. This study therefore advanced that the identified principles were best established by looking at how they were applied in the design and construction of the various rehabilitation facilities that were studied. The best applications were then generalised into architectural solutions that could be used in the proposed rehabilitation centre. The design of rehabilitation facilities places a strong emphasis on creating a cosy, friendly and familiar environments, and furnishings that could successfully substitute an institutional feeling that maybe available at ones' home. From the research findings, therapeutic spaces are recommended for effective treatment and rehabilitation because drug de-addiction and rehabilitation aim to provide emotional support in addition to medical care, instead of removing physical drug dependence. In addition, it is advised that the government treat drug users in therapeutic settings rather than confining them to jails and detention centres for ineffective rehabilitation. If the government employs this study, it will rebuild public trust in the government and completely eradicate the private rehabilitation homes, especially, by unlicensed individuals. It is also a significant contribution that inspires other researchers and government to establish similar centres across the nation, and provide gainful employment opportunities for the teeming young people.

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