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Utilizing biophilic design attributes to create healing environments in the design of proposed health resort Daura

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Abstract
For thousands of years, man lived the majority of his life outside of walls and depended on the natural environment to sustain life. In today's culture, individuals spend approximately 80% of their lives indoors, blocking out the natural world and facing increased stress or associated illness as an outcome. This research explores the subject of biophilia—the innate and evolutionary-based human affinity for the natural environment—and its design attributes in the creation of optimal healing environments. By understanding how the built environment can reconnect people with nature, this paper presents a design framework for a health resort in Daura, Katsina State. The study concludes that biophilic design can be used to create healing environments by enhancing human psychological experience and physical comfort.

Keywords: Biophilic design, healing environments, health resort architecture, wellness and restoration, environmental psychology

Introduction

1. Background of the Study

The relationship between the built environment and human health is a central focus of contemporary architectural discourse (Totaforti, 2020) [4]. While nature once provided the primary context for human existence, modern civilization has shifted toward a sedentary, indoor-centric lifestyle (Browning & Ryan, 2020) [1]. Over the past decade, active interest in health has evolved into a specialized health tourism sector designed to pamper the body and relax the mind (Zhong *et al*., 2022) [5]. In the context of Daura, a historic town in Katsina State, this need is exacerbated by a semi-arid climate and an evolving urban fabric that often prioritizes rigid structures over nature-integrated design.

Current health resort environments are expected to offer holistic healing, yet many are limited to physical activities with less consideration for the environmental, social, or psychological wellness they could promote. A "Healing Environment" is an opportunity for users to transform their usual states of consciousness—often associated with illness and despair—into a more optimistic and healing attitude for their well-being (Kellert & Calabrese, 2019; Browning & Ryan, 2020) [1, 3]. By applying biophilic attributes such as natural ventilation, organic curvilinear forms, and sensory water features, the proposed resort in Daura aims to create a restorative sanctuary that reduces guest stress levels.

2. Aim and Objectives

The aim of this research is to utilize biophilic design attributes to create a healing environment in the design of the proposed Health Resort, Daura. To achieve this, the following objectives were identified:

1. To study resorts, with emphasis on health resorts.
2. To study the connection between biophilia and healing environments.
3. To explore ways in which biophilic design attributes can be applied to create healing environments.
4. To apply these attributes in the design of a health resort so as to create an optimal healing environment.

Literature Review

1. Classification and Types of Resorts

A resort is a self-contained commercial establishment that provides for most of a vacationer's needs including food, lodging, and entertainment, while they remain on the premises (Zhong *et al*., 2022) [5]. Resorts are often classified by a star rating system, where higher ratings indicate increased luxury and exceptional guest care. Among these, the Health or Spa Resort is specifically dedicated to improving health and fitness through controlled programs such as hydrotherapy, acupuncture, and holistic treatments.

2. The Concept of Wellness and Healing Environments

Healing is the process of re-establishing harmony within an individual, as illness implies a loss of balance. An Optimal Healing Environment (OHE) focuses on two major aspects: the activities that take place there and the physical design of the spaces. Architecture participates in this process by creating spaces that are not inert containers but active participants in the healing experience (Totaforti, 2020) [4].

3. Biophilic Design Attributes and Human Comfort

Biophilic design utilizes the innate human affinity for nature to foster restoration (Kellert & Calabrese, 2019) [3]. Key attributes identified in this study include:

- **Natural Light and Ventilation:** Shifting patterns of dynamic light help relieve mental fatigue and reduce anxiety
- **Curvilinear Shapes and Forms:** Asymmetric forms abstracted from nature (like flowers) provide a seamless sensory experience and are perceived as less stressful than rigid structures.
- **Presence of Water:** Water features provide visual relief and "white noise" to block out undesirable sounds, fostering a feeling of spirit regeneration.
- **Health Benefits of Plants:** Vegetation increases the ability to concentrate, soothes the senses, and decreases the likelihood of stress-related depression.

4. Restoration and Recovery Theory

Contact with natural environments has a psychologically restorative effect. These "restorative environments" incorporate therapeutic elements that function by reducing cognitive fatigue and alleviating stress (Browning & Ryan, 2020) [1]. Studies consistently show that environments dominated by greenery or water are more effective in promoting recovery than built environments lacking natural elements (Zhong *et al*., 2022).

Research Methodology

This study adopted a qualitative research design. Data was collected through an extensive Literature Review of architectural data and environmental psychology. Case Studies of existing health resorts, such as Chiva-Som in Thailand and Natur-Med in Turkey, were analyzed based on variables like building form, respect for site, and nature integration. Further Site Analysis identified critical climatic and geological requirements to ensure the design remains climate-responsive.

Results and Findings

The summary of empirical findings from case study analysis and site evaluation revealed:

- **Integration Trends:** While 90% of studied resorts incorporated natural landscaping, only 30% effectively employed curvilinear architectural forms.
- **Topographical Respect:** 90% of facilities demonstrated a high degree of respect for the site's natural topography.
- **Material Efficiency:** In the semi-arid context, masonry bricks proved superior for thermal and acoustic insulation.
- **Sensory Connectivity:** Continuous dynamic flow, achieved through curvilinear paths and shapes, provides the seamless sensory experience necessary for healing.

Recommendations

Based on the findings, the following recommendations are provided:

- **Sensory Integration:** Designers should view the site as a woven tapestry of spaces providing spontaneous interactions with nature
- **Contextual Materiality:** Use renewable or local materials like masonry, thatch, and stone to create a strong connection to the natural and cultural context.
- **Strategic Acoustic Zoning:** Zone facilities based on noise levels, placing lodging in "Quiet Zones" where natural sounds like water can be maximized.
- **Active Ventilation:** Prioritize natural light and ventilation through architectural forms to maintain high indoor air quality.

Conclusion

The study concludes that biophilic design is a vital tool for solving the limitations of standard resort healing methods. By addressing the environmental and psychological wellness of the user, architecture becomes a functional participant in public health. In Daura, the integration of organic planning and indigenous materials creates a restorative sanctuary that exploits nature's grandeur to promote long-term holistic well-being.

References

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