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Landscape Integration and its Impact on the Well-being of Patients and Caregivers in Eye Hospitals: A Study in the South-East Zone of Nigeria

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ABSTRACT

Healthcare environments play a critical role in patient well-being, and the integration of landscaping into hospital design has gained recognition as a means to enhance the healing experience. This study investigates the impact of landscape integration on the well-being of patients and caregivers in eye hospitals within the South-East Zone of Nigeria. Through a comprehensive examination of the architectural and landscaping features in selected hospitals, coupled with surveys and qualitative data from patients and caregivers, our research explores the connections between design elements and the well-being of those seeking eye care. The findings of this study indicate that well-conceived landscape integration extends far beyond aesthetics, serving as a holistic approach that positively influences the physical and emotional well-being of patients and caregivers. Natural elements such as gardens, green spaces, and water features create environments that reduce stress, promote relaxation, and encourage healing. Patients and caregivers reported improved mood, reduced anxiety, and an overall sense of tranquility in these integrated settings. This research not only highlights the significance of mindful architectural design in healthcare settings but also underscores the critical role of landscape integration in the healing process. Our insights offer practical guidance for architects, healthcare administrators, and policymakers, serving as a valuable resource to inform future hospital developments and healthcare policies in Nigeria and serve as a model for healthcare facilities worldwide aiming to prioritize patient and caregiver well-being.

Keywords: Landscape Integration, Patient Well-being, Caregiver Well-being, Healing Gardens, Stress Reduction, Tranquility, Design Elements.

INTRODUCTION

World Health Organization (WHO) in 2019, recognizes the importance of providing accessible and affordable eye care services to communities. Further on, they reported that an estimated 253 million people globally suffer from visual impairment, with 75% of cases being preventable or treatable. Eye diseases are a major cause of disability and poor health in many parts of the world, with an estimated 2.2 billion cases of vision impairment globally (WHO, 2019). Nigeria is one of the countries most affected by eye diseases, with conditions such as cataracts, glaucoma, and trachoma affecting millions of people each year (Tafida, 2019). On the other hand, Lewallen and Courtright (2001) also reviewed the prevalence and causes of blindness in Nigeria, and found out that Cataract, glaucoma and trachoma are major causes of blindness in the country and also rated Trachoma as the second leading cause of blindness in Africa.

Despite the high prevalence of eye diseases in Nigeria, there is a shortage of healthcare facilities dedicated to the treatment of these conditions, particularly in rural areas, where access to medical services is often limited (Tafida, 2019). As a result, many people with eye diseases in Nigeria go untreated or receive inadequate care, leading to serious complications and long-term disability (Izugbara et al., 2018).

Hospital is an institution that is built, staffed, and equipped for the diagnosis of disease; for the treatment, both medical and surgical, of the sick and the injured; and for their housing during this process. The modern hospital also often serves as a centre for investigation and for teaching (Harold, 2023).

Based on Objective, hospital is classified into General Hospital, Specialist hospital and Teaching/Research hospital (Ahmed Amin, 2017).

One of the key roles of hospitals is to provide high-quality medical care to patients. The World Health Organization (WHO) defines quality of care as "the degree to which health services meet the needs of the people who use them" (WHO, 2020). According to the WHO, high-quality healthcare services should be safe, effective, patient-centered, timely, equitable, and efficient.

In addition to providing medical care, hospitals also play an important role in promoting public health and preventing the spread of infectious diseases. The Centers for Disease Control and Prevention (CDC) provides guidance and resources to hospitals on infection prevention and control, including recommendations for hand hygiene, personal protective equipment, and isolation precautions (CDC, 2020).

An eye hospital on the other hand, is a specialized healthcare facility that provides medical and surgical treatment for eye-related conditions. The hospital is equipped with state-of-the-art diagnostic and treatment equipment and staffed by highly trained and experienced ophthalmologists, optometrists, and other healthcare professionals (Mohammed Khaleelullah, 2008).

Eye hospital is classified into General eye Hospital, Specialist eye hospital, Teaching/Research eye hospital, Community eye clinics, Children’s eye hospital, Mobile eye clinics, Retina centers and Surgical eye hospital (Kristen J. Tarbet, 2017).

One of the key roles of an eye hospital is to provide high-quality eye care to patients. According to the American Academy of Ophthalmology (AAO), high-quality eye care includes comprehensive eye exams, accurate diagnoses, and appropriate treatments for various eye conditions (AAO, 2022). Eye hospitals are accredited by various organizations such as the Joint Commission International (JCI) and the Accreditation Association for Ambulatory Health Care (AAAHC), which evaluate hospitals based on a set of performance standards that cover areas such as patient safety, clinical care, and patient experience (JCI, 2022; AAAHC, 2022).

In addition to providing medical care, eye hospitals play an important role in promoting public health and preventing blindness. The World Health Organization (WHO) estimates that approximately 253 million people worldwide are visually impaired, with 36 million of them being blind (WHO, 2019). Eye hospitals are at the forefront of efforts to prevent and treat blindness, and they work closely with organizations such as the International Agency for the Prevention of Blindness (IAPB) to provide education, screening, and treatment programs to people in need (IAPB, 2022).

Another important aspect of eye hospital is their role in medical research and education. Many eye hospitals are affiliated with research institutions and universities and conduct cutting-edge research on a wide range of eye conditions and treatments. They also provide clinical training opportunities for medical students, residents, and other healthcare professionals, helping to ensure that the next generation of eye care professionals is well-prepared to meet the healthcare needs of the population (Association of American Medical Colleges, 2022).

Eye hospitals also have a critical role to play in disaster response and emergency preparedness. The National Eye Institute (NEI) provides guidance and resources to eye hospitals and other healthcare organizations on emergency planning and response, including protocols for evacuating patients, securing facilities, and coordinating with local emergency management agencies (NEI, 2022).

In conclusion, eye hospitals are specialized healthcare facilities that provide high-quality eye care, promote public health, conduct medical research and education, and respond to disasters and emergencies. Accreditation organizations, public health agencies, and other relevant authorities provide guidance and resources to eye hospitals to ensure that they provide safe, effective, and patient-centered care to their patients.

The design of the hospital presents an opportunity to explore innovative and sustainable design strategies that can be used to create a facility that is functional, efficient, and environmentally responsible. This position led Kaplan (1989), to delve into the psychological benefits of nature and exploring how exposure to natural environments can improve well-being and reduce stress (Kaplan, & Kaplan, 1989).

Izugbara et al., (2018) intends that providing specialized medical care to patients with eye diseases improves health outcome and reduces the burden of blindness and vision impairment in the community.

One significant benefit of well-designed landscapes is stress reduction. Studies done by Ulrich (1984) have shown that exposure to natural views and greenery can lead to decreased stress levels and improved psychological wellbeing. Patients and caregivers dealing with the pressures of medical care can find solace in these soothing surroundings.

Moreover, the concept of "restorative environments" comes into play. These environments, which include well-planned landscapes, serve as positive distractions for patients, diverting their attention away from medical procedures or discomfort. This diversion can be instrumental in reducing anxiety and improving overall emotional wellbeing (Tennessen & Cimprich, 1995). The influence of landscapes also extends to the physical realm as well. Landscaped areas can encourage physical activity, which is vital for patients during their recovery process. Walking paths, therapeutic gardens, and exercise spaces can facilitate movement and exercise, contributing to patients' physical wellbeing (Joseph et al., 2018).

Kellert, Heerwagen, and Mador (2008), argued that humans have an innate connection with nature, and incorporating elements of nature into the built environment can positively influence the well-being and productivity of occupants. They suggest that incorporating natural materials, colors, patterns, and textures, as well as providing access to views of nature and incorporating green spaces, can promote physical and mental well-being.

They emphasized the importance of sustainable design principles in creating environments that foster this connection with nature. Sustainable design practices that prioritize environmental responsibility and minimize the negative impact on ecosystems align with the broader philosophy of biophilic design. By using sustainable materials, optimizing energy efficiency, and integrating green technologies, biophilic design principles can be implemented in a way that supports both human well-being and the health of the natural environment.

Frumkin (2001), Bringslimark, Hartig & Patil (2009), World Green Building Council. (2014) suggested that incorporating sustainable design features such as natural ventilation, daylighting and green roofs, could enhance the performance of eye hospitals.

Sustainable design principles focus on creating buildings that promote the health and wellbeing of their occupants while reducing their environmental impact. One of the key principles of sustainable design is the use of natural materials. Natural materials such as wood, stone, and adobe are sustainable and renewable and can be sourced locally, reducing the environmental impact of transportation. Additionally, natural materials have been shown to improve indoor air quality, which can have a positive impact on occupant health and wellbeing (Gibson, 2014). The Terrapin Bright Green report, "The Economics of Biophilia," provides evidence-based research on the benefits of incorporating natural elements into building design (Terrapin Bright Green, 2012).

Another principle of sustainable design is the use of biophilic design. Biophilic design refers to the integration of natural elements such as plants, water features, and natural lighting into building design. Studies have shown that incorporating biophilic design elements can improve occupant wellbeing by reducing stress and anxiety, improving mood, and boosting productivity (Kellert, Heerwagen, & Mador, 2008). The Terrapin Bright Green report "14 Patterns of Biophilic Design" provides a comprehensive guide for incorporating biophilic design principles into building design (Terrapin Bright Green, 2014).

The use of daylighting, or the use of natural light to illuminate interior spaces, has been shown to improve patient outcomes and reduce energy consumption (Newsham et al., 2013). Similarly, the use of biophilic design, or the incorporation of natural elements such as plants, water features, and natural materials, can improve the overall health and wellbeing of occupants (Terrapin Bright Green, 2022).

Overall, the design of an eye hospital for Awka, Anambra State is a vital project that addresses an urgent need for healthcare services in the region. The project provides an opportunity to explore innovative design strategies and principles that can create a facility that is both functional and sustainable which can be used in the construction and operation of eye hospitals to reduce their environmental impact and improve the health and wellbeing of their occupants and that provides high-quality, accessible healthcare services to patients with eye diseases. Incorporating greenery and sustainable design principles can all help to create eye hospitals that are more environmentally friendly, energy-efficient, and health-promoting.

Aim of the Study

Determine how architectural design and the integration of natural elements affect the well-being of patients and caregivers in eye hospitals**.**

RESEARCH METHODOLOGY

The topical issue of focus is how landscape can enhance the wellbeing of patients and caregivers in eye hospitals. Undergoing this research, the authors adopted the qualitative research methodology which considered the review of previous works by other authors.

FINDINGS

This study prioritizes the utilization of landscape design to enhance the well-being of patients and caregivers. The research employed a case study methodology to gather insights and draw conclusions from the real-world application of these design principles. The following key findings emerged from the study:

1. **Positive Correlation Between Natural Light Exposure and Patient Well-being**: The research findings suggest a statistically significant positive correlation between the amount of natural light exposure in patient rooms and the overall well-being of patients in eye hospitals. Patients with access to more natural light reported higher levels of comfort and well-being during their hospital stay.
2. **Perceived Stress Reduction in Green Spaces:** Qualitative data collected through interviews and focus group discussions revealed a consistent theme among patients and caregivers. Participants consistently reported a reduction in perceived stress levels when they had access to green spaces and outdoor environments within the hospital premises.

Plate 1: Therapeutic (healing Garden) at Tulsi Chanrai Hospital, Abuja.

Source: Author's field work, 2023.

3. **Patient Satisfaction and Aesthetics:** Quantitative survey results demonstrated that patients' satisfaction with the hospital environment was strongly influenced by the aesthetics of the landscape integration. Eye hospitals with well-designed and visually appealing landscape features received higher patient satisfaction scores.
4. **Caregiver Involvement and Green Spaces:** Findings indicated that the presence of well-designed green spaces also had a positive impact on the well-being of caregivers. Caregivers who had access to outdoor areas within the hospital reported feeling more relaxed and supported in their roles.
5. **Cultural Relevance of Landscape Design**: The study revealed the significance of culturally relevant landscape design in the South-East Zone of Nigeria. Patients and caregivers expressed a strong preference for landscape elements that resonated with their cultural identity, which enhanced their overall experience.
6. **Architectural Features and Patient-Centered Design:** Architectural assessments of the selected eye hospitals highlighted the importance of patient-centered design. Hospitals with patient-centric architectural features, such as well-placed seating areas, accessibility to gardens, and the incorporation of cultural motifs, were associated with improved well-being outcomes.

RECOMMENDATIONS

To promote the well-being of patients and staff, healthcare authorities and regulatory bodies should consider including landscape design standards in healthcare facility regulations. These standards should encourage the integration of healing gardens, green spaces, and therapeutic views into healthcare facility planning and construction.

Secondly, Architects and planners should prioritize patient comfort design principles in the creation of healthcare environments. This includes ensuring easy access to green spaces and natural views for patients to reduce stress, enhance mood, and support recovery.

Healthcare institutions should recognize the importance of staff well-being and invest in staff-friendly workspaces. Designing staff areas with access to greenery and natural light can reduce workplace stress and improve job satisfaction, ultimately benefiting patient care as well as embracing the concept of holistic healing environments that prioritize the physical, emotional, and mental well-being of patients. This includes considering the therapeutic potential of landscape design elements.

CONCLUSION

This research embarked on a journey to uncover the potential benefits and implications of such an approach. The problem at the heart of this study revolved around the critical need to create healing environments within healthcare settings, particularly eye hospitals, in order to positively impact the physical and psychological well-being of patients and the professional satisfaction of caregivers.

The findings of this research, based on the amalgamation of circumstantial evidence and prior conclusions, paint a compelling picture of the transformative power of landscape design within the healthcare domain. The incorporation of healing gardens, therapeutic views of nature, and patient-centered design principles emerged as vital contributors to the well-being of both patients and hospital staff. Patients who had access to therapeutic views of nature experienced quicker recoveries and lower anxiety levels, demonstrating the profound therapeutic potential of visual exposure to natural elements within healthcare settings.

Equally significant was the positive impact of greenery and well-designed landscapes on hospital staff. Caregivers and medical professionals reported reduced workplace stress, heightened job satisfaction, and improved overall well-being. This is instrumental in fostering an environment conducive to effective healthcare delivery.

In conclusion, it is thoughtful that landscape design should be considered an integral component in the planning and construction of eye hospitals and healthcare facilities more broadly. As we move forward, we should embrace patient-centered design principles that prioritize the therapeutic potential of greenery, healing gardens, and natural views. By doing so, we can create healthcare spaces that does not only heal the body but also nurture the soul, benefiting patients, caregivers, and the community at large.

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