

Architectural Elements in Mental Health

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Abstract— This research paper discusses the influence of architectural features like light, sound, color, form, and landscape on mental health, especially in psychiatric health care institutions. In a literature review, case studies, and prevailing healthcare guidelines, the study tries to bring out the importance of careful design in the aid of psychological well-being. The paper concludes with deductions based on the study and proposes measures for incorporation of these factors in the design of psychiatric hospitals.

Index Terms— Mental health, Architecture, Design elements, Psychiatric hospital, Light, Color, Sound, Landscape, Shape, Healing environment.

I. INTRODUCTION

Healthcare spaces are often designed with functionality as the main priority, but this can sometimes lead to environments that feel cold and clinical. While this approach ensures efficiency, it can also increase stress for patients, families, and even staff. In contrast, Architectural elements aims to create spaces that feel more natural and welcoming, which can promote both physical healing and mental well-being.

Mental health has a close relationship with the physical environment. The spatial arrangement that are done, materials that are used, and sensory experiences offered by architectural elements supports the psychological well-being.

This paper focuses on how architectural elements are applied in healthcare settings, exploring its effects on patients and highlighting the key elements that make this approach so effective.

II. LITERATURE STUDY

This study shows that psychological recovery and behavioral outcomes in mental health settings can be influenced by architectural features.

Exposure to green views and natural light is stated to decrease agitation and stress among psychiatric patients by (Ulrich, 2008). Just like that, it is also proposed by (Evans) that the level of noise and acoustics has an immediate impact on mood and recovery. According to color psychology, soft warmth reduces aggression and evokes calmness. It.

Research by (Shepley, 2016) indicates that spatial organization, like circular arrangements and soft-edged forms, form less institutional and more human spaces. Landscaped courtyards have also been found to enhance mood and promote social interaction ((Marcus & Sachs, 2013).

A. Elements in Mental Health

1. Light

Light affects mood, cognitive function, sleep patterns, and overall psychological health. A good lighting design in mental health environments can help minimize stress, enhance emotional stability, and enhance the healing process. Natural light and artificial light both have an important role in the creation of a therapeutic environment.

(Benedetti, 2001) studied the impact of natural light on psychiatric patients and found that those exposed to morning sunlight had shorter hospital stays.



Figure 1: Vermont Psychiatric Care Hospital
Source: <https://www.aplususa.com/project/vermont-psychiatric-care-hospital/>

2. Color

Color is a powerful architectural element that influences emotions, behavior, and psychological well-being.

In mental health spaces, the careful selection of colors can create soothing, reassuring, and healing spaces, whereas the wrong color choice can cause stress, restlessness, or uneasy. Color psychology plays a key role in planning mental health buildings, therapy rooms, hospitals, and wellness centers. The effect of color is determined by hue, saturation, brightness, and context, so color theory must be used purposefully (Markovic, 2004).

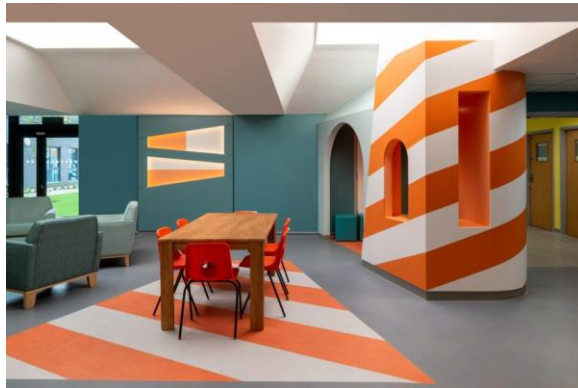


Figure 2: The inpatient communal lounge includes a lighthouse-inspired design
Source: <https://www.dezeen.com/2021/08/22/projects-office-camhs-edinburgh-mental-health-facility-interior/>

3. Sound

Sound is an essential architectural component with a significant impact on mental health, mood, concentration, and relaxation. Sound in mental health architecture can help alleviate stress, promote soothing atmospheres, and improve cognitive processes. On the other hand, too much noise, echoes, and disruptions lead to anxiety, agitation, and discomfort. Effective acoustic design will ensure that rooms facilitate mental health by achieving harmony between quiet spaces, therapeutic sound, and methods of noise reduction. (Ulrich, 2008) recognized noise as a significant stressor in healthcare settings. The study emphasized that excessive noise increases anxiety and agitation in psychiatric patients.



Figure 3: Stress due to excessive sound
Source: <https://www.kumc.edu/about/news/news-archive/medical-gaslighting-research.html>

4. Shape

Form and shape of spaces are important determinants of psychological well-being, emotional reactions, and cognitive ability. Architectural shapes influence how people perceive, interact with, and feel in an environment. In mental health design, the use of soft, organic, and human-centered shapes can promote a sense of comfort, security, and relaxation, while harsh or rigid geometries may cause discomfort and stress. Curved and fluid shapes are often associated with calmness and natural flow, while sharp angles and rigid lines can create feelings of unease or confinement. The strategic use of shape in architecture helps create healing environments that support mental well-being.



Figure 4: A lighthouse mural using different shapes and design in the garden courtyard creates opportunities for play
Source: <https://www.dezeen.com/2021/08/22/projects-office-camhs-edinburgh-mental-health-facility-interior/>

5. Landscape

Landscape plays a crucial role in enhancing mental well-being, reducing stress, and promoting relaxation. The integration of natural elements, green spaces, water features, and outdoor environments in architectural design fosters a healing atmosphere for individuals dealing with mental health challenges.

Biophilic design principles suggest that humans have an innate connection to nature, and exposure to landscapes, gardens, and outdoor spaces can significantly improve mood, cognitive function, and emotional stability. By incorporating therapeutic landscapes, mental health facilities, hospitals, and wellness centers can create spaces that encourage calmness, social interaction, and self-reflection.



Figure 5: KTPH
Source: <https://www.goodnewsnetwork.org/green-hospital-lowers-blood-pressure-with-plants/>

III. CASE STUDY

A. Vidyasagar Institute of Mental Health, Amritsar

Vidyasagar Institute of Mental Health, located in Amritsar, India, is a government-run psychiatric facility.

It gives inpatient and outpatient mental wellbeing administrations, counting crisis care, treatment, recovery, and long-term psychiatric treatment. The healing center takes psychiatric plan standards, consolidating components that emphatically impact understanding well-being.



Figure 6: Front Aspect
Source: <https://architizer.com/idea/170972/>

1. Light

Large windows in patient rooms allow natural light, reducing the need for artificial lighting. Skylights and courtyard openings provide additional daylight exposure.

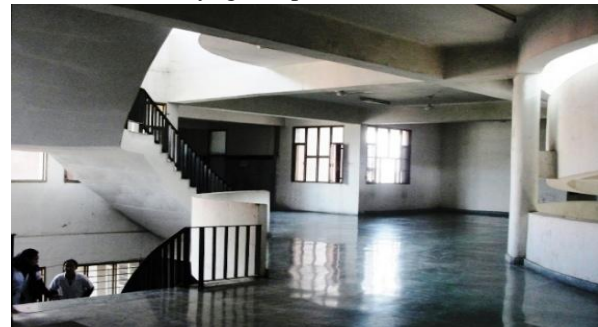


Figure 7: Windows for ventilation and natural light
Source: <https://architizer.com/idea/311157/>



Figure 8: Atrium
Source: <https://architizer.com/idea/311160/>

2. Color

The architectural design elegantly includes earth tones and pastels, like light green, pale blue, and beige, to create a comforting and non-intimidating ambiance. Avoiding stark white and jarring contrast, which sometimes gives an almost clinical or abrasive feel, the interior space itself feels warm and welcoming. Adding to this reassuring atmosphere is the use of natural, non-shiny finishes of stone, brick, and wood. In addition, the surfaces are easily cleanable and maintainable, but they contain textures that prevent an institutional look. This method smoothly combines functionality and warmth so that space feels inviting as well as functional.

3. Sound

Acoustic insulation is used in wards and therapy rooms to minimize noise disturbance. Quiet zones are designated to ensure low-stimulation environments for highly sensitive patients.

4. Shape

Circular nursing stations allow better supervision of patients, reducing the chances of self-harm or violence. Open corridors with clear wayfinding help patients navigate easily, reducing confusion and stress.

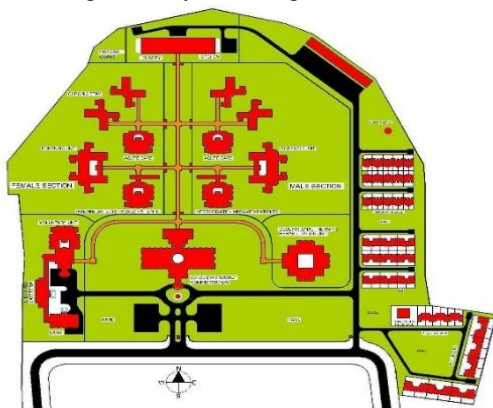


Figure 9: Site plan of Hospital
Source: <https://architizer.com/idea/311153/>

5. Landscape

Therapeutic gardens with shaded seating areas encourage relaxation. A horticultural therapy space allows patients to engage in gardening, which has proven therapeutic benefits.



Figure 10: Landscape
Source: <https://architizer.com/idea/170973/>

B. Vejle Psychiatric Hospital

The Psychiatric Clinic in the Danish city of Vejle was awarded the Mental Wellbeing Plan category of the European Healthcare Plan Grants 2018. The initiator, Arkitema Designers, focused on recovering engineering, with abundance of light and clear nature. It has reduced physical limitation basically.

The idea of the clinic was to create a visionary mental health healing center with 91 beds, children walking, psychiatric ER and ECT. The basis for the venture can be a territorial center on outpatient treatment. Thus, the unused healing center supports treatment of patients with serious and complex behavioral conditions which need hospitalization. A necessary plan center has been on a visionary healthcare plan which enables physical action and minimizes powerful mediation.



Figure 11: Vejle Psychiatric Hospital
Source: <https://www.arkitema.com/en/project/psykiatrisygehys-vejle>

1. Light

To provide the complete effect of lights healing on psychiatric patients the building has been planned by the architects with special attention to both natural and artificial light. Glass walls and interior courtyards leave plenty of daylight into the building. Retracted ceilings and interior glass cause light to spread even further throughout the building. In addition, 24-hour colored light therapy is incorporated into the wards to provide soothing recovery, sleep support, depression elimination and maintenance of a natural circadian rhythm for patients and staff.



Figure 12: Courtyard and large windows at Vejle Psychiatric Hospital
Source: <https://www.arkitema.com/en/project/psykiatrisygehys-vejle>

2. Color

To create a soothing and inviting atmosphere, we've chosen a palette of soft, desaturated colors such as moss green, muted blues, and sandy beiges. These hues not only promote calmness but also enhance the overall warmth of space. We've incorporated natural and tactile materials, including timber cladding, warm-toned floors, and soft fabrics, which add a cozy touch. Most importantly, we've avoided anything that has a sterile or institutional feel, staying away from harsh white surfaces that can be off-putting. Rather, we use gentle color coding and considered material selection to define various zones, ensuring that navigation is easy and intuitive without overwhelming visitors with too much signage. This way, all elements work together to create a harmonious and inviting space.



Figure 13: Indoor Sports Room
Source: <https://www.arkitema.com/en/project/psykiatrisygehys-vejle>

3. Sound

Chosen walls and functions are lined with wooden slats to provide good acoustics and foster a good ambiance. An environment that is anything but institutional and as close to homeliness as possible. Application of acoustic materials and noise barriers to reduce disturbances. Quiet areas for patients, insulated walls, and soft furnishings are implemented.

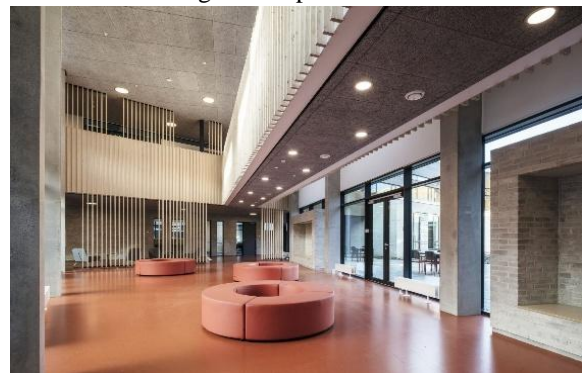


Figure 14: Different materials are used in interior
Source: <https://www.arch2o.com/vejle-psychiatric-hospital-arkitema-architects/>

4. Shape

The complex have eight cluster houses that beautifully create a circular traffic where the cluster houses and the functional and administrative building, a closed ring in nature, consolidate all the functions and provide an open as well as well-organized psychiatric hospital. Here, patients enjoy a well-defined and secure environment which allows them to find back their position in life, since they build up their strength and use the common facilities more and more gradually.



Figure 15: Drone view of hospital site
Source: https://images.adsttc.com/media/images/5b95/c03ff197/cc72/ee00/0315/slideshow/Drone_-_Photo_MT_H%C3%B8jgaard.jpg?1536540725

5. Landscape

The hospital is placed at the bottom of a forest covered hillside and Large healing gardens, walking trails, and sensory therapy spaces, Outdoor seating spaces, water features, and courtyards with lush greenery.



Figure 16: Landscaping in Hospital
Source: <https://www.arkitema.com/en/project/psykiatrisygehys-vejle>

C. Santvana Manopchar Mental Hospital, Raipur

Santvana Manopchar is one of the few dedicated mental health institutions in Chhattisgarh, located in Raipur. The hospital is designed to provide psychiatric care and rehabilitation services. It accommodates outpatient consultations, in-patient wards, and rehabilitation units in a serene, semi-urban setting that balances accessibility with a calm environment. The design of the hospital is modest but functional, addressing basic mental health infrastructure with elements that can be further enhanced architecturally.



Figure 17: Santvana Manopchar Mental Hospitals
Source: https://www.manopcharraipur.com/photo_gallery.html

1. Light

Natural Light: The hospital's Indoor-Patient Department (IPD) is positioned in a picturesque green environment on the periphery of Raipur, in Mana, covering an area of 10 acres. This setting allows ample natural light to permeate patient areas, promoting a sense of well-being and aiding in the regulation of circadian rhythms.

Artificial Lighting: While specific details on artificial lighting are not provided, the design likely incorporates appropriate lighting levels to ensure patient comfort and safety during evening hours.



Figure 18: IPD
Source: https://www.manopcharraipur.com/photo_gallery.html

2. Color

Interior Palette: The hospital emphasizes creating a non-institutional atmosphere. Although specific color schemes are not detailed, it's common practice in mental health facilities to use calming colors like soft blues, greens, and earth tones to reduce anxiety and promote relaxation.

Therapeutic Spaces: Areas such as the occupational therapy rooms and recreational spaces are designed to be inviting and conducive to healing, potentially utilizing color schemes that stimulate engagement and comfort.



Figure 19: Combination of warm color
Source: https://www.manopcharraipur.com/photo_gallery.html

3. Sound

Acoustic Considerations: While specific acoustic treatments are not mentioned, the hospital's location in a serene, green environment inherently reduces noise pollution, contributing to a tranquil atmosphere essential for mental health recovery.

Recreational Areas: The provision of indoor games like carom and chess, as well as outdoor games such as badminton and volleyball, suggests designated areas where sound levels are managed to prevent disturbances to other patients.

4. Shape

Building Layout: The IPD includes separate male and female wards, each with 24 beds, and 12 private wards. The spatial arrangement ensures privacy and reduces overcrowding, which is crucial for patient comfort.

Therapeutic Spaces: The inclusion of seminar rooms, behavior therapy rooms, and occupational therapy areas indicates a thoughtful spatial configuration that supports various therapeutic activities.

5. Landscape

Natural Surroundings: The hospital's IPD is enveloped by picturesque landscapes and verdant meadows, creating a therapeutic environment that aids in the healing process.

Gardening Activities: As part of occupational therapy, patients engage in gardening, which not only provides physical activity but also fosters a connection with nature, enhancing mental well-being.



Figure 20: Garden in Manopchar, Mana
Source: https://www.manopcharraipur.com/photo_gallery.html

IV. CONCLUSION

Architectural elements are not just visual or structural aspects; they are active participants in healing. In psychiatric hospitals, elements like light, sound, shape, landscape, and color must be carefully designed to ensure they support mental well-being. By integrating evidence-based design practices with mental health standards, architects can contribute meaningfully to psychiatric care and recovery.

V. ACKNOWLEDGMENT

I would like to express my sincere appreciation to my research Guide, Ar. Neeta Mishra, for her exceptional guidance and support during this research endeavor. I am also grateful to the faculty and staff at Amity University Chhattisgarh for their assistance and the resources they provided. My colleagues and peers deserve my heartfelt thanks for their encouragement and valuable feedback. I extend special gratitude to the professionals and experts who generously shared their knowledge and insights. Finally, I am profoundly thankful to my family and friends for their steadfast support and patience throughout this journey, this achievement reflects their unwavering belief in me.

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