



Research and Analysis of the Influence of the Built Environment on the Mood of Depressed Patients

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Abstract. This article explores the profound impact of architecture and interior design on the mental health of individuals, especially those with depression. Key factors such as natural light, color choice, spatial layout, acoustic environment, and greenery can significantly influence mood and emotional stability, and designers can achieve better spatial psychological outcomes and pay more attention to the mental state of people with depression. In the same case study, we show how thoughtful design can alleviate symptoms of depression and promote well-being. The challenges in assessing the cost of social behaviour encouragement and individualized design were acknowledged. Overall, well-designed spaces can greatly improve the psychological state of individuals, especially those with depression, emphasizing the importance of taking into account both physical and psychological factors in the generation of architectural spaces.

Keywords: Depression, emotions; architectural space; design methods

1 Introduction

1.1 The Impact of Architecture and Interior Design on an Individual's Mental Health

The available information and circumstances suggest that architects and interior designers do not seem to have sufficient consideration of physical space for the mood of depressed patients. For example, overcrowded floor spacing or floor spacing, such as extreme monotonous and boring color applications, such as deafening subway noise, these factors harm the emotional stability and physical and mental health of people with depression in various ways. Not to mention the depressed patients, the vast amount of information suggests that the incidence of mental illness in modern cities is much higher than in rural areas, in the article "Architectural design can really affect mental health, and bad architecture can be an accomplice to depression", the author mentions that "in the city, on the crowded subway, in the dense office buildings, you can easily see the state of mental sub-health on people's faces"^[1]. Study found that city dwellers were 21% more likely to suffer from anxiety disorders and 39% more likely to suffer from mood disorders than their rural counterparts^[2]. Such mental health problems not only have a serious impact on individuals' daily life, work efficiency and interpersonal

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relationships, but also increase the medical burden of society and reduce the productivity of society as a whole. Therefore, it is imperative to pay attention to and improve mental health in urban environments.

Architectural space will have a very significant impact on the psychological state and mood of depressed patients, some good physical space can play a role in calming or even improving the psychological state of depressed patients, in the article *Spatial Poetics and Mental Health in Architecture*, the authors point out that a 2008 randomized clinical trial conducted by Park and Mattson on surgical patients showed that arranging plants in patient rooms reduced anxiety, blood pressure, and heart rate levels. This suggests that natural elements within an architectural space can have a positive impact on the physical and mental recovery of patients. On the contrary, some bad buildings will bring worse emotions to depressed patients and even destroy the psychological and even physical health of depressed patients. For example, in the article *Bad Buildings as an Accomplice to Depression*, the authors point out that as early as 2009, researchers at the University of Amsterdam published an academic article that found that urban dwellers were 21% more likely to suffer from anxiety disorders and 39% more likely to suffer from mood disorders. In addition, people who grew up in cities were twice as likely to suffer from split personality than their rural peers, and this was triggered by the urban living environment^[3].

2 Influencing Factors

Some architectural spatial factors have an obvious impact on depressed patients, such as natural light, such as color selection, such as spatial layout, such as privacy considerations, such as the use of green plants, such as the arrangement of art decorations, these factors will not only have an impact on depressed patients, but also for every ordinary person with normal perception, it is also very important. In addition, the influence of some architectural spatial factors on depressed patients is more subtle and less easily perceived, such as the influence of the sound environment, which is not easy to be perceived and perceived in most architectural spaces, especially in some short-term public spaces.

2.1 Physical Environmental Factors (Light, Color, Layout, Sound, Greenery)

"Architectural spaces have a significant impact on the mood of people with depression, such as natural light, color choices, spatial layout, privacy considerations, the use of greenery, and artistic decoration, which are important not only for people with depression, but also for ordinary people^[3]. In the article on the psychology of color and spatial emotion in contemporary interior design, the author points out that color is considered to be a powerful expression of emotion. Different colors can elicit different emotions and feelings, and different color choices and combinations can create diverse atmospheres and emotional experiences. Similarly, in a review of the health effects of living

space form design from the perspective of light comfort, the authors show that the impact of living space form on health in the directions of visual comfort, physiological function, and emotional feeling is studied through cluster analysis.

In a specific case, Norway's "Yayoi Hanama Community Park Design"^[4] showcased how through rich interactive design and the use of aromatic plants, it can help people with depression relieve symptoms, promote communication between people, and use landscape to heal the soul; The design of the Psychotherapy Urban Park in Xi'an University Town is specifically designed for patients with depression, creating a comprehensive space integrating thinking, relaxation, communication and treatment through sensory stimulation and ergonomic means, showing how the design can significantly improve the mental health of patients with depression through sensory experience and humanized consideration. In social activity spaces, effective social behaviors can greatly encourage people with depression to communicate with others and reduce loneliness in people with depression. This is very beneficial for stabilizing the psychological state of people with depression".

2.2 Psychological and Social Factors (Privacy, Interactive Design, Humanized Design, Personalization)

In the article "Talking about the positive role of planting roofs in the construction of ecological green cities" from the acoustic dimension, it is mentioned that different types of green plants may be used to reduce noise in the space. Another example is the social activity space, effective social behavior can greatly encourage patients with depression to communicate with others, reduce the loneliness of patients with depression, which is very conducive to stabilizing the psychological state of patients with depression, and even conducive to the rehabilitation of patients with depression^[5].

In *Healing Space Design, The Human Senses and Chinese Architecture*, the author discusses how to design spaces that promote physical and mental recovery, emphasizes the importance of the human senses in design, and explores the application of Chinese architecture in this regard^[5]. Through the study of the experience brought by different methods and methods, the author tries to find the interaction between people and architecture, and find out where the comfort of architectural space is.

Last but not least, the impact of the concept of personalized design on space design, there are no two truly identical leaves in the world, and there are no two truly identical people in the world. In the discussion on experiential commercial interior space design based on emotional design^[6], the author shows that designers pay attention to behavioral level design when designing commercial space, respect the specific needs of individuals in terms of safety, comfort, practicality, etc., and promote individuals to have a positive and positive emotional value experience of commercial building space. According to the psychological and age characteristics of the target consumer groups in the shopping mall, the designer should reasonably design the location of the internal facilities of the shopping mall to attract the attention of consumers and fully stimulate the emotional experience of consumers.

3 Challenging Risk Assessment

However, it is a difficult question to assess whether the building space encourages social behavior, whether it is conducive to social space, and finally there is the issue of individualization, which is also not easy to detect, and a good architectural space needs to allow people with depression to be respected by individualization, rather than a generalized display, which is not only a difficult problem to evaluate, but may also involve the rise of construction costs.

All in all, the impact of architectural space on the mood of people with depression is clear. Architectural design and interior design can create a more comfortable and inclusive space environment for patients with depression through their own consideration and stretching, and it is easier to take more care of these vulnerable groups who are easy to be overlooked. This needs to involve many physical environmental factors such as sound, light, heat and electricity, as well as many psychological factors such as privacy, socialization, personality, etc.

The optimization of design behavior may lead to the problem of rising design costs, which is a big risk for the market, but this does not mean that the emotional care of depressed patients is worthless, and the value brought by such design behavior optimization is often continuous, long-term and intangible. While it is true that many customization elements and professional design can greatly increase the cost of building a space, it can contribute a lot to the mental health of people and the overall well-being of society, at least in the following main aspects: First, for individuals, personalized design can improve the quality of life of occupants, making them feel more comfortable and satisfied, and this positive emotional experience is invaluable. Good mental health is a key component of an individual's well-being. Personalized design helps reduce psychological issues such as stress, anxiety, and depression by providing a comfortable environment and emotional support. Second, for society, personalized spaces can promote social interaction and community engagement, which are essential for building social connections and support networks, which are important protective factors for mental health. In the work environment, individual design can increase employee job satisfaction and productivity, which is beneficial for both the company's economic performance and the employee's personal fulfillment. Finally, even for investors, while the initial investment may be higher, personalized design can save costs in the long run by reducing health problems and improving quality of life. The individual design is able to better adapt to the changing needs of the occupants, and this flexibility can reduce possible future retrofit costs over time. A well-designed and personalized space can increase the market value of a property and bring financial returns to investors^[7].

Another risk problem is that while considering the optimization of design behavior, the consideration of space safety is taken into account, and the expression of some personalized spaces may indeed bring certain safety risks, which requires the designer's consideration, including at least the following basic safety principles: first of all, the safety of the material and structure itself, personalized design may involve the use of specific materials and products, and it is necessary to ensure that the safety and durability of these materials meet the standards, and will not sacrifice safety due to the pursuit of uniqueness. Individual designs may include non-traditional structural elements,

such as profiled structures or hanging elements. These designs need to undergo rigorous structural engineering evaluations to ensure they do not increase the risk of collapse or damage. The second is fire protection and mobility safety, the materials and decorative elements used in the individual design should comply with fire safety codes, avoid the use of flammable materials, and ensure that there are adequate smoke detectors and fire extinguishers. The individual design should not hinder the clarity and accessibility of escape routes and emergency exits. The design should comply with building regulations to ensure that people can be safely evacuated in the event of an emergency^[8]. Then there is consideration and respect for people with disabilities or disadvantaged groups, and personalized design should take into account the needs of all users, including people with disabilities. The design should follow accessibility design principles to ensure that the space is safe and accessible for all. If the building space will be used by children or the elderly, the individual design should take into account their safety needs, such as avoiding sharp corners and ensuring furniture stability. Finally, there are environmental considerations and sustainability considerations, and the individual design should take into account environmental factors such as natural light and ventilation to reduce reliance on artificial lighting and air conditioning systems, while ensuring the safety of the environment itself. The individual design should be easy to maintain, and the materials and components used should be durable enough to reduce safety risks due to improper maintenance.

4 Implementation Methods Suggested Methods

There's a lot of work to be done as a designer. From the previous cases and analysis, and from our logical expansion, we can roughly get the following types of expressions.

First of all, it is very important to be close to nature, which includes: first and foremost, as much as possible: incorporating green spaces, gardens or courtyards into the design. Exposure to nature has been shown to reduce stress and improve mental health. Then use more light: Design your space to maximize natural light, which can help regulate your body clock and improve your mood. Large windows, skylights, and light wells can be used to bring in sunlight. Finally, bio-friendly design is as much as possible: natural elements such as plants, water features, and natural materials are integrated to create a connection with the natural world, which has a calming and healing effect^[9].

Secondly, respect for the human senses is a topic that designers must consider, including: Color therapy: the strategic use of color throughout the space. Warm tones can create a feeling of comfort and security, while cool tones can promote feelings of calm and relaxation. Space Layout: Design an open and inviting layout that encourages social interaction and a sense of community. Avoid creating isolated or enclosed spaces, which can exacerbate loneliness. Acoustic comfort: Designing spaces with good acoustic properties to minimize noise pollution can be distressing. Use sound-absorbing materials and create quiet areas for people to rest. Visual aesthetics: Creating visually appealing environments that can elevate mood. Artwork, interesting architectural features, and well-designed spaces can contribute to a positive atmosphere.

Finally, it should be said that design is always at the service of people, and designers should respect people's physical and psychological needs to the greatest extent, including: Spatial layout: Design open and inviting layouts that encourage social interaction and a sense of community. Avoid creating isolated or enclosed spaces, which can exacerbate loneliness. Privacy: Ensuring that the space provides privacy and opportunities for quiet reflection is important for individuals who may need time alone. Vision system: Ensure that the environment is easy to navigate and understand. Clear identification and logical paths can reduce anxiety and confusion. Variable space design considerations: as much as possible, a space can have more functions, meet more needs, meet the individual needs of different depression patients and even different users, and promote their physical and mental health. Consideration of physical activities: The design of the dynamic and static rhythm of the space should take into account the increase and coordination of the patient's activity space as much as possible, such as the design of tree-lined walking paths, the arrangement of fitness facilities or the consideration of some rest spaces, etc. The impact of exercise on people's emotions is self-evident, and there are many studies in this area, which we will not list. Consideration and design of community participation: In the design of architectural space, appropriate circulation lines and spatial communication should be arranged as much as possible, so that users, especially those with depression, have more opportunities to contact each other, and at the same time, the personal privacy space of patients with depression should be taken into account, and the dynamic and static connection between individuals and society should be weighed^[10]. Sustainability considerations: Design actions should be as eco-responsible as possible, focusing on human-centered design behaviors, such as reducing carbon participation and emissions, increasing the possibility of reuse and redesign, etc. Safety assurance: The issue of safety is complex, including physical safety and psychological comfort, such as avoiding sharp, confined space design considerations, such as irritating considerations of light, color, and smell.

5 Conclusion

The spatial layout of a building has a profound impact on people's mood and behavior. Proper layout can create a positive environment that promotes the healthy development of people's emotions and behaviors, especially those with depression. By considering factors such as the choice of color and materials, natural light and daylighting, acoustic design, etc., to create an open, flowing space environment and reasonable functional zoning, we can improve the effect of the architectural space layout and provide a more comfortable and pleasant living and working environment for people, especially those with depression. At the same time, measures such as incorporating natural elements, increasing adjustability and adaptability, and introducing art and culture can further improve the emotional and behavioral experience of people with depression. Therefore, in architectural design, designers should pay attention to the influence of spatial layout to create a built environment that is more in line with people's needs. While optimizing design behavior may increase costs, the long-term benefits of improved mental health

and well-being, increased productivity, and reduced healthcare burden justify this investment. Personalized and human-centered design not only improves the quality of life of individuals, but also contributes to the well-being of society by promoting social connections and community engagement.

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