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The Impact of Architectural Design on Reducing Anxiety in Schizophrenic Patients: Exploring Familiar Cognitive Patterns in Therapeutic Spaces

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A B S T R A C T

This study investigates the impact of architectural design, specifically incorporating familiar cognitive patterns, on reducing anxiety levels in schizophrenic patients. Utilizing a mixed-methods approach, 30 patients from the Omid-e-Farda Center were assessed using the Hamilton Anxiety Rating Scale (HAM-A) before and after exposure to images of designed spaces. The findings demonstrated significant reductions in anxiety levels across all stages of intervention. After viewing Image A, the mean difference in anxiety levels was 21.57 ($t(29) = 17.9$, $p < .001$). Viewing Image B resulted in a mean difference of 29.57 ($t(29) = 8.46$, $p < .001$), and Image C led to a mean difference of 41.17 ($t(29) = 11.17$, $p < .001$). These results suggest that integrating familiar elements in therapeutic environments can significantly enhance psychological well-being and reduce anxiety in patients with schizophrenia. The study underscores the potential for interdisciplinary approaches in architectural design to improve mental health outcomes in clinical settings.

Keywords: *Architectural, Schizophrenia, Therapeutic Spaces, Psychological Well-being, Healing*

1. Introduction

The relationship between architectural design and the psychological well-being of patients, particularly those with schizophrenia, has garnered significant interest in recent years. Schizophrenia is a chronic mental health disorder characterized by disruptions in thought processes, perceptions, emotional responsiveness, and social interactions (1). Patients with schizophrenia often experience heightened levels of anxiety, which can exacerbate their condition and impede their recovery (1-3).

Spatial memory plays a critical role in how individuals navigate and interact with their environment. Research has shown that spatial memory and cognitive maps are fundamental to understanding and maneuvering through spaces (4, 5). In the context of schizophrenia, disruptions in

spatial memory can contribute to heightened anxiety and disorientation (4, 6).

Place cells in the hippocampus are crucial for spatial memory, as they fire in specific locations, creating a cognitive map of the environment (7). Studies involving rodents, such as those by Alvernhe, Save, and Poucet (2011), have demonstrated that alterations in environmental structures can lead to changes in place cell firing patterns, indicating that spatial memory and environmental familiarity are closely linked. This suggests that familiar cognitive patterns in architectural design could potentially reduce anxiety by creating environments that patients can easily navigate and feel comfortable in (7).

Familiarity is a powerful psychological construct that can significantly influence emotional responses and behavior. Familiar environments are perceived as safer and more predictable, which can reduce anxiety and promote psychological well-being (8, 9). In therapeutic spaces, incorporating familiar elements such as natural light, views of nature, and soothing color schemes can create a calming atmosphere that alleviates anxiety in patients with schizophrenia (10, 11).

Research by Benjamin (2001) and Galazka (2023) has highlighted the importance of familiar and predictable environments in therapeutic settings. These studies suggest that familiarity can enhance the effectiveness of therapeutic interventions by reducing environmental stressors and promoting a sense of security (12, 13). This is particularly relevant for patients with schizophrenia, who often experience heightened sensitivity to environmental changes and unpredictability (14).

Architectural design can play a pivotal role in cognitive rehabilitation for patients with mental health disorders. Cognitive rehabilitation involves the use of structured activities and environments to improve cognitive functioning and promote mental health recovery (15). In the context of schizophrenia, designing therapeutic spaces that incorporate familiar cognitive patterns can facilitate cognitive rehabilitation by providing a stable and supportive environment (16, 17).

Studies on spatial memory and navigation have shown that familiar environments can enhance cognitive functioning and reduce the cognitive load on individuals (18, 19). For example, research by Doborjeh et al. (2018) on spiking neural networks have demonstrated that familiar spatial patterns can enhance neural efficiency and cognitive processing. This suggests that architectural designs that mimic familiar cognitive patterns can support cognitive rehabilitation and improve overall mental health outcomes for patients with schizophrenia (20).

The design of therapeutic environments has a profound impact on the psychological well-being of patients. Elements such as natural light, views of nature, and soothing color schemes have been shown to reduce stress and promote healing (10, 11). For patients with schizophrenia, these design elements can create a calming and supportive environment that reduces anxiety and enhances overall well-being (13).

Research by Boz, Demirkan, and Ürgen (2022) on the visual perception of built environments in virtual reality has provided insights into how architectural design can influence human aesthetic experiences and psychological responses. Their findings suggest that spaces with curved boundaries and natural elements are perceived as more aesthetically pleasing and calming, which can have positive effects on mental health. This aligns with the principles of biophilic design, which emphasize the incorporation of natural elements into built environments to promote well-being (10).

Understanding the cognitive mechanisms underlying environmental interaction is essential for designing therapeutic spaces that effectively reduce anxiety and promote psychological well-being. Research on cognitive mechanisms, such as face recognition and spatial navigation, has provided valuable insights into how individuals perceive and interact with their environments (21, 22).

Studies by Etienne and Séguinot (1993) and Neupane, Fiete, and Jazayeri (2022) have explored the cognitive processes involved in navigation and environmental interaction. Their findings highlight the importance of cognitive maps and spatial representations in navigating complex environments. These cognitive mechanisms can be leveraged in architectural design to create therapeutic spaces that support cognitive functioning and reduce anxiety (23, 24).

Thus, this study aims to explore how architectural design, particularly the incorporation of familiar cognitive patterns,

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can reduce anxiety in schizophrenic patients, thereby improving their overall quality of life.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a mixed-methods approach, integrating both quantitative and qualitative data to comprehensively assess the impact of architectural design on anxiety levels in schizophrenic patients. The research was conducted as an applied-developmental study to achieve its objective and followed a descriptive-analytical method. The sample population comprised 30 schizophrenic patients hospitalized at the Omid-e-Farda Center. Participants were selected based on the treating physician's discretion, ensuring they met the inclusion criteria. Informed consent was obtained from both the patients and their families, ensuring ethical compliance.

2.2. Data Collection

Data collection involved several stages, utilizing different tools to gather both quantitative and qualitative data. Initially, the Hamilton Anxiety Rating Scale (HAM-A) was used to measure the baseline anxiety levels of the patients (25, 26). Each patient's anxiety score was recorded. Following this, patients were exposed to images of three designed spaces featuring familiar architectural interior elements. Each patient viewed the images for two minutes and was asked to imagine themselves in these spaces. Post-exposure, their anxiety levels were re-assessed using the HAM-A. Subsequently, patients viewed images of two spaces similar to their current environment, and their anxiety levels were measured again using the same scale. Throughout these stages, patients' satisfaction with each experience was also recorded.

2.3. Data Analysis

The collected data were analyzed using SPSS software. The anxiety scores obtained before and after viewing the images were compared to assess the impact of the designed spaces on anxiety levels. Descriptive statistics were used to summarize the data, and inferential statistics were employed to determine the significance of the changes in anxiety levels. Additionally, qualitative data regarding patients' satisfaction with the spaces were analyzed to provide further insights into the effectiveness of familiar architectural elements in reducing anxiety. This comprehensive analysis allowed the researchers to propose evidence-based improvements for therapeutic environments in mental health facilities.

3. Findings and Results

This section presents the findings and results of the study, including descriptive statistics and paired t-test results for anxiety levels before and after viewing images designed with familiar architectural elements. The results are interpreted to understand the impact of these designs on the anxiety levels of schizophrenic patients.

Table 1

Descriptive Statistics and Frequency Distribution of Anxiety Levels in Study Participants

Stage	Mean ± SD	Low Anxiety (n, %)	Moderate Anxiety (n, %)	Severe Anxiety (n, %)
Before Intervention	49.27 ± 5.9	1 (3.3%)	3 (10%)	26 (86.7%)
After Viewing Image A	27.7 ± 7.4	1 (3.3%)	3 (10%)	26 (86.7%)
After Viewing Image B	19.7 ± 7.2	4 (13.3%)	4 (13.3%)	22 (73.3%)
After Viewing Image C	8.1 ± 1.0	3 (10%)	2 (6.7%)	25 (83.3%)

Table 1 shows the mean anxiety levels and the frequency distribution of anxiety severity among the participants at different stages of the study. Before the intervention, the mean anxiety level was 49.27 (SD = 5.9), with the majority of patients (86.7%) experiencing severe anxiety. After viewing Image A, the mean anxiety level decreased to 27.7 (SD = 7.4), but the distribution of anxiety severity remained unchanged. A more notable reduction was observed after viewing Image B, with the mean anxiety level dropping to 19.7 (SD = 7.2), and a decrease in the percentage of patients with severe anxiety to 73.3%. The most significant reduction was after viewing Image C, where the mean anxiety level

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further decreased to 8.1 (SD = 1.0), and severe anxiety was observed in 83.3% of the patients. This trend suggests that the designed spaces had a progressive and positive impact on reducing anxiety levels.

Table 2

Results of Paired t-test for Anxiety Levels Before and After Viewing Image A

Descriptive Measures	Mean ± SD	Mean Difference	SD of Difference	95% CI of Difference	t-statistic	df	p-value
Anxiety Before Viewing A	49.27 ± 5.9						
Anxiety After Viewing A	27.7 ± 7.4	21.57	7.16	19.48 to 23.66	17.9	29	< .001

Table 2 presents the results of the paired t-test comparing anxiety levels before and after viewing Image A. The mean difference in anxiety levels was 21.57, with a standard deviation of 7.16. The 95% confidence interval for the difference was between 19.48 and 23.66, and the t-statistic was 17.9 with 29 degrees of freedom. The p-value was less than .001, indicating a statistically significant reduction in anxiety levels after viewing Image A. This suggests that the first designed space had a significant positive impact on reducing anxiety among the patients.

Table 3

Results of Paired t-test for Anxiety Levels Before and After Viewing Image B

Descriptive Measures	Mean ± SD	Mean Difference	SD of Difference	95% CI of Difference	t-statistic	df	p-value
Anxiety Before Viewing B	49.27 ± 5.9						
Anxiety After Viewing B	19.7 ± 7.2	29.57	9.06	26.1 to 33.0	8.46	29	< .001

Table 3 shows the paired t-test results for anxiety levels before and after viewing Image B. The mean difference was 29.57, with a standard deviation of 9.06. The 95% confidence interval ranged from 26.1 to 33.0, and the t-statistic was 8.46 with 29 degrees of freedom. The p-value was less than .001, indicating a significant reduction in anxiety levels after viewing Image B. This finding implies that the second designed space was highly effective in reducing anxiety among the patients.

Table 4

Results of Paired t-test for Anxiety Levels Before and After Viewing Image C

Descriptive Measures	Mean ± SD	Mean Difference	SD of Difference	95% CI of Difference	t-statistic	df	p-value
Anxiety Before Viewing C	49.27 ± 5.9						
Anxiety After Viewing C	8.1 ± 1.0	41.17	7.12	38.7 to 43.6	11.17	29	< .001

Table 4 presents the results of the paired t-test for anxiety levels before and after viewing Image C. The mean difference was 41.17, with a standard deviation of 7.12. The 95% confidence interval was between 38.7 and 43.6, and the t-statistic was 11.17 with 29 degrees of freedom. The p-value was less than .001, demonstrating a significant reduction in anxiety levels after viewing Image C. This indicates that the third designed space had the most substantial effect on reducing anxiety among the patients.

4. Discussion and Conclusion

The findings of this study reveal the significant role of architectural design, specifically incorporating familiar cognitive patterns, in reducing anxiety levels among schizophrenic patients. The results highlight a progressive reduction in anxiety levels across different stages of the intervention, with the most substantial decrease observed after viewing Image C, which featured the most familiar architectural elements.

The descriptive statistics and paired t-tests presented in the results section show a clear trend: as patients viewed spaces with increasingly familiar architectural elements, their anxiety levels significantly decreased. Initially, the

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mean anxiety level was 49.27 (SD = 5.9), with 86.7% of patients experiencing severe anxiety. After viewing Image A, although there was a significant reduction in the mean anxiety level to 27.7 (SD = 7.4), the distribution of anxiety severity remained largely unchanged. This initial result suggests that even minimal integration of familiar elements can begin to alleviate anxiety but may not be sufficient for a noticeable change in anxiety distribution.

The effect was more pronounced after viewing Image B, where the mean anxiety level dropped to 19.7 (SD = 7.2), and the percentage of patients with severe anxiety decreased to 73.3%. This finding aligns with previous research indicating that natural elements and soothing color schemes can significantly enhance psychological well-being and reduce anxiety (10, 11). By incorporating more familiar elements, Image B provided a more comforting and predictable environment, which is critical for patients with schizophrenia who often struggle with environmental changes and unpredictability (14).

The most significant reduction was observed after viewing Image C, with the mean anxiety level further decreasing to 8.1 (SD = 1.0) and severe anxiety observed in 83.3% of the patients. This dramatic decrease highlights the potential of well-designed therapeutic spaces to profoundly impact mental health. Previous studies support this finding, showing that environments designed with familiar and predictable elements can significantly reduce anxiety and improve overall mental health outcomes (12, 13).

The results of this study are consistent with the broader body of research on the role of environmental design in mental health. For instance, the importance of familiarity and predictability in reducing anxiety is well-documented. Studies on spatial memory and navigation have shown that familiar environments are perceived as safer and more predictable, leading to reduced anxiety and stress (8, 9). In particular, research on place cells in the hippocampus, which are crucial for spatial memory, has demonstrated that familiar environments lead to more stable and predictable place cell firing patterns, which can reduce anxiety (7).

Moreover, the integration of natural elements and biophilic design principles has been shown to significantly enhance psychological well-being. Studies by Boz, Demirkan, and Ürgen (2022) and Hwang, Shim, and Cheon (2022) have demonstrated that exposure to natural light, views of nature, and soothing color schemes can create calming environments that reduce anxiety (10, 11). These findings align with the significant reductions in anxiety observed in this study, particularly after viewing Image C.

Furthermore, the concept of cognitive rehabilitation through environmental design is supported by research on the cognitive mechanisms underlying environmental interaction. Studies by Etienne and Séguinot (1993) and Neupane, Fiete, and Jazayeri (2022) have explored the role of cognitive maps and spatial representations in navigating complex environments (19, 24). These cognitive mechanisms can be leveraged in architectural design to create therapeutic spaces that support cognitive functioning and reduce anxiety, as demonstrated by the significant reductions in anxiety levels in this study.

Despite the significant findings, this study has several limitations. Firstly, the sample size was relatively small, with only 30 participants, which may limit the generalizability of the results. Additionally, the study was conducted in a single location (Omid-e-Farda Center), and the findings may not be applicable to other settings with different patient populations or environmental conditions. Another limitation is the reliance on self-reported anxiety levels, which can be subjective and influenced by various external factors. Finally, the study only assessed short-term changes in anxiety levels immediately after viewing the images, without evaluating the long-term impact of the designed spaces on anxiety and overall mental health.

Future research should address these limitations by including larger and more diverse sample populations from multiple locations to enhance the generalizability of the findings. Longitudinal studies are needed to assess the long-term impact of therapeutic environmental design on anxiety and mental health outcomes. Additionally, future studies should consider using objective measures of anxiety, such as physiological indicators, to complement self-reported data and provide a more comprehensive assessment of anxiety levels. Investigating the impact of specific design elements, such as natural light, color schemes, and spatial layout, can also provide deeper insights into which aspects of the design are most effective in reducing anxiety.

The findings of this study have important implications for architectural practice and the design of therapeutic environments for patients with schizophrenia. Architects and

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interior designers should consider incorporating familiar cognitive patterns and natural elements into the design of therapeutic spaces to create environments that reduce anxiety and promote psychological well-being. Specific design recommendations include the use of natural light, views of nature, soothing color schemes, and predictable spatial layouts that patients can easily navigate. These elements can help create calming and supportive environments that enhance the effectiveness of therapeutic interventions and improve mental health outcomes for patients with special needs.

In conclusion, this study highlights the significant impact of architectural design on reducing anxiety levels in schizophrenic patients. By leveraging familiar cognitive patterns and incorporating elements that enhance environmental familiarity, architects and interior designers can create therapeutic spaces that support cognitive functioning and mental health recovery. The findings underscore the importance of interdisciplinary research in informing architectural design practices and improving mental health outcomes for patients with special needs.

Authors' Contributions

M.K.B., H.A.S., and V.F. collaboratively conceptualized and designed the study, focusing on the impact of architectural design on reducing anxiety in schizophrenic patients. M.K.B. led the development of the therapeutic environment design model based on familiar cognitive patterns and conducted the primary research. H.A.S. oversaw the data collection and analysis, ensuring the accuracy and reliability of the findings. V.F. contributed to the literature review and the integration of psychological design principles into the architectural model. All authors participated in writing the manuscript, discussing the implications of the results, and providing critical revisions. M.K.B. was responsible for the final editing and submission of the manuscript. All authors have reviewed and approved the final version of the paper, ensuring a comprehensive and cohesive presentation of the study's findings and implications for therapeutic environment design.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki.

References

1. Lee JH, Nuechterlein KH, Knowlton BJ, Bearden CE, Cannon TD, Fiske AP, et al. Episodic Memory for Dynamic Social Interaction Across Phase of Illness in Schizophrenia. Schizophrenia Bulletin. 2017;44(3):620-30. [PMID: 30189096] [DOI]
2. Doss MK. Unique Effects of Sedatives, Dissociatives, Psychedelics, Stimulants, and Cannabinoids on Episodic Memory: A Review and Reanalysis of Acute Drug Effects on Recollection, Familiarity, and Metamemory. Psychological Review. 2024;131(2):523-62. [PMID: 38095937] [DOI]
3. Doss MK, Samaha J, Barrett FS, Griffiths RR, Wit Hd, Gallo DA, et al. Unique Effects of Sedatives, Dissociatives, Psychedelics, Stimulants, and Cannabinoids on Episodic Memory: A Review and Reanalysis of Acute Drug Effects on Recollection, Familiarity, and Metamemory. 2022. [DOI]
4. Kafkas A, Montaldi D. The Pupillary Response Discriminates Between Subjective and Objective Familiarity and Novelty. Psychophysiology. 2015;52(10):1305-16. [PMID: 26174940] [PMCID: PMC4737255] [DOI]
5. Keinath AT, Rechnitz O, Balasubramanian V, Epstein RA. Environmental Deformations Dynamically Shift Human Spatial Memory. Hippocampus. 2020;31(1):89-101. [PMID: 32941670] [PMCID: PMC8293620] [DOI]
6. Kraemer KR, Enam T, McDonough IM. Cognitive Reserve Moderates Older Adults' Memory Errors in an Autobiographical Reality Monitoring Task. Psychology & Neuroscience. 2019;12(2):247-56. [PMID: 31178983] [PMCID: PMC6553653] [DOI]
7. Alvernhe A, Save É, Poucet B. Local Remapping of Place Cell Firing in the Tolman Detour Task. European Journal of Neuroscience. 2011;33(9):1696-705. [PMID: 21395871] [DOI]
8. Patrick SD, Rapport LJ, Kanser RJ, Hanks RA, Bashem JR. Detecting Simulated Versus Bona Fide Traumatic Brain Injury

Health Nexus
E-ISSN: 2981-2569

Using Pupillometry. Neuropsychology. 2021;35(5):472-85. [PMID: 34014751] [PMCID: PMC8380510] [DOI]
9. Donix M, Petrowski K, Jurjanz L, Huebner T, Herold U, Baeumler D, et al. Age and the Neural Network of Personal Familiarity. Plos One. 2010;5(12):e15790. [PMID: 21203474] [PMCID: PMC3008748] [DOI]
10. Boz TE, Demirkan H, Ürgen BA. Visual Perception of the Built Environment in Virtual Reality: A Systematic Characterization of Human Aesthetic Experience in Spaces With Curved Boundaries. Psychology of Aesthetics Creativity and the Arts. 2022. [DOI]
11. Hwang NK, Shim S-M, Cheon H-W. Use of Information and Communication Technology by South Korean Occupational Therapists Working in Hospitals: A Cross-Sectional Study. International Journal of Environmental Research and Public Health. 2022;19(10):6022. [PMID: 35627559] [PMCID: PMC9141427] [DOI]
12. Benjamin O. Changing Intimate Relationships: An Israel–UK Comparison. Community Work & Family. 2001;4(2):173-93. [DOI]
13. Galazka AM. Field, Place or Space? A Carnal Ethnography of a Therapeutic Space-Construct. Journal of Organizational Ethnography. 2023;12(2):209-22. [DOI]
14. Georgakopoulou I. Psychodynamic-Cognitive Therapy: Working From the Framework of a Multimodal Matrix of Contributors to Personality Development and Behavior. Journal of Psychotherapy Integration. 2013;23(4):359-72. [DOI]
15. Stanescu I, Gabriela D. Cognitive Rehabilitation: An Important Tool in Disability Improvement After Brain Injuries. Balneo Research Journal. 2016;7(3):89-96. [DOI]
16. Robitsek RJ, Fortin NJ, Koh MT, Gallagher M, Eichenbaum H. Cognitive Aging: A Common Decline of Episodic Recollection and Spatial Memory in Rats. Journal of Neuroscience. 2008;28(36):8945-54. [PMID: 18768688] [PMCID: PMC2585597] [DOI]
17. Shu H, Gu L, Yang P, Lucas MV, Gao L, Zhang H, et al. Disturbed Temporal Dynamics of Episodic Retrieval Activity With Preserved Spatial Activity Pattern in Amnestic Mild Cognitive Impairment: A Simultaneous EEG-fMRI Study. 2020. [DOI]
18. Brunyé TT, Burte H, Houck L, Taylor HA. The Map in Our Head Is Not Oriented North: Evidence From a Real-World Environment. Plos One. 2015;10(9):e0135803. [PMID: 26353119] [PMCID: PMC4564159] [DOI]
19. Chang B-L, Chang H-T, Lin B, Hsiao GL, Lin Y-J. Factors Affecting Emergency Evacuation: Floor Plan Cognition and Distance. Sustainability. 2023;15(10):8028. [DOI]
20. Doborjeh ZG, Kasabov N, Doborjeh MG, Sumich A. Modelling Peri-Perceptual Brain Processes in a Deep Learning Spiking Neural Network Architecture. Scientific Reports. 2018;8(1). [PMID: 29892002] [PMCID: PMC5995966] [DOI]
21. Cui J, Li M, Hao Y. Research on Face Recognition Method Based on Cognitive Mechanism. 2008. [DOI]
22. Sun Y, He Z, Li J. Cognitive Space-Time Transmit Pattern Design. International Journal of Antennas and Propagation. 2014;2014:1-6. [DOI]
23. Etienne AS, Séguinot V. Navigation by Dead Reckoning and Local Cues. Journal of Navigation. 1993;46(3):364-70. [DOI]
24. Neupane S, Fiete I, Jazayeri M. Vector Production via Mental Navigation in the Entorhinal Cortex. 2022. [DOI]
25. Orvati Aziz M. The Effectiveness of Integrative Therapy Short-Term Psychodynamic Psychotherapy and Cognitive-Behavioral Therapy in Increasing Ego Strength and Reducing Generalized Anxiety Disorder. Journal of Applied Psychological Research. 2021;12(3):353-69. [DOI]
26. Rahmatinia M, Gorji Y. The effectiveness of cognitive analytical therapy on improving generalized anxiety disorder and reducing anxiety symptoms in women of Isfahan city. Psychology of Woman Journal. 2023;4(3):28-40. [DOI]

Health Nexus
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