



Architecture for specific patients (Case study of psychiatric patients with schizophrenia)

Sepideh Sharif Khajehpasha

E-mail: Sepideh63Sharif@Gmail.com

Ph.D. Candidate of Architecture, Faculty of Art and Architecture, Iran, Ayine Kamal University, Orumiyeh

Behzad Saeidi H

Bachelor of Architecture, Faculty of Art and Architecture, Iran, Ayine Kamal University, Orumiyeh

Mohammad Amin Khanmohammadi

Master student of architecture, Faculty of Art and Architecture, Iran, Ayine Kamal University, Orumiyeh

Abstract

One of the centers that has high sensitivity for design is psychotherapy center because of special physical, mental and sentimental conditions of their patient. Design and architecture of psychotherapy centers and caring mental patients are new subjects; and there was no attempt to study and design of this center by specialist. To start design of every usage, recognition of habitants of that place is necessary. Recognition and understanding of different needs of Schizophrenic patients and attempt to meet their needs and respect to priority of these needs in designing and improving their special spaces can be effective in improvement of its quality. Schizophrenia is a chronic and debilitating illness which is associated with impaired social and occupational skills and it affects approximately one percent of the world population. The subject of this interdisciplinary article is architecture and psychology. Purposes of that are obtaining a codified agreement, design standards and present an architectural pattern for treatment and positive influences on mental disorders of schizophrenic patients and his return to a normal life.

Key words: Psychiatric Centers, Architecture, Schizophrenia.

Introduction

Today, it has been found that humans are more influenced by space than they influence the space (Zarghami, Nasiri, & Ejdefar, 2013). Human behavior is influenced by the environment in which they live. Since human social behavior does not occur in a vacuum, one of the spaces influencing this behavior is the physical environment (Kazemi Shishavan & Sharif Khajehpasha, 2020). Thus, on the one hand, the physical environment is effective on human behavior, and on the other hand, the reflection of the physical environment is mirrored in the quality of the environment in which humans live. As such, there is an objective relationship between human beings, physical environment, and quality of life (Mohammad Nia & Zabihi, 2013).

Every man needs a place to live safe and acceptable settlement is a major component of complex services and a basis for maintenance of patients with severe and disabling mental illness in the community

(Kopelowicz & Liberman ,2009; Shepherd & Murray ,2001). One of the main needs of patients with severe Psychiatric Disorders is helping them to return home. If discharge from hospital or residential rehabilitation places is not done properly, it can have negative effect on the whole future life of patients (Salter and Turner, 2008). Rights of people with mental disorders are violated in various ways. In many cases psychiatric patients without supervision have been deprived of their right to have a free life. This means that although many of them are able to make decisions about their life and future, forcibly are admitted to a mental health centers and institutions for many years (Abbasi & Others ,2010). Unfortunately, due to misconceptions about schizophrenia and severe mental illness stigma, imagine of the society is that these patients are not efficient in life, while with usual care these people can have a normal life. Design of Psychotherapy center and maintenance of mental patients is new subject. And never complete attempt has been done by local experts to design of this usage. The patterns which have come into operation, despite extensive design and administrative personnel, are taken away from realism. This issue has followed failing to achieve the desired results of treatment (Ashrafi,2012). In addition, it is observed that despite passing years and rejecting used principle in designing such places, we are still using them. Hence the attempt to gather new information for designing specifically for schizophrenic patients is the first step in this study; as patient’s needs are answered with more variety compared to healthy person’s needs. People who have their own world of unique needs. The needs which are not possible to easily discovered and meet. They have much lower ability to adapt themselves with situation than normal person; so there is so unique complexity in design of this usage. Technical observance with attention to this that this environment should be similar to the environment of individual’s life is very sensitive task made psychotherapy hospital as one of the rarest and most expensive subjects in civil matters.

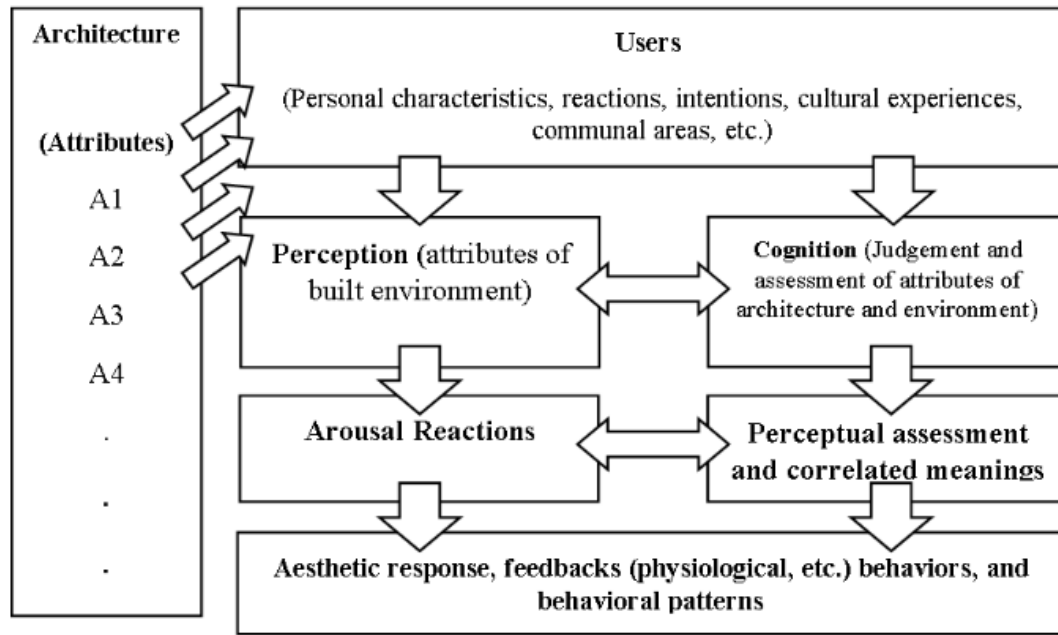


Figure 1: Model of Feedbacks and Behavioral Responses in Explaining the Relationship Between Users and the Built Environment (Kazemi Shishavan & Sharif Khajehpasha,2020).

Literature Review

Mental illness such as schizophrenia causes disruptions in cognition, perception, emotion, and behaviour. Schizophrenia is a debilitating psychiatric disorder that affects the brain's ability to function properly (Kopelowicz et al., 2009). Despite the fact that schizophrenia affects just a small percentage of the world's

population, it is a leading cause of morbidity and premature death worldwide. Individuals suffering from schizophrenia have a life expectancy that is approximately 15 years shorter than that of the general population, owing to a high rate of suicide and concomitant physical illness (Kazemi Shishavan, & Sharif Khajehpasha, 2020). Schizophrenia is most commonly diagnosed in youth. Its beginning is frequently characterised by social disengagement and cognitive impairment, which may occur years or decades before the first psychotic episode appears to have occurred. In order to aid in the diagnosis of this illness, anticipate the beginning, course, or severity of the disorder, or predict how well a treatment would work, valid objective biomarkers are currently not available. When making a diagnosis of schizophrenia, it is necessary to consider both 'positive' symptoms, such as hallucinations and delusions, and 'negative' symptoms, such as apathy and social withdrawal. Loss of motivation and an inability to experience pleasure are also required for a diagnosis of schizophrenia (Saghaei et al., 2020).

Antipsychotic medications, which have been the cornerstone of schizophrenia treatment for the past 60 years, can provide clinically meaningful reductions in positive symptoms and prevent psychotic relapse; however, they should always be used in conjunction with psychosocial interventions to achieve the best clinical results. Antipsychotic drugs have little or no positive effect in approximately 20–30 percent of patients, and unacceptable adverse effects and therapy termination are rather prevalent in this population. Furthermore, current medication is mainly unsuccessful in treating negative symptoms of schizophrenia and cognitive impairment, which are common in the general population. Despite the fact that patients' outcomes vary widely, many people who suffer from schizophrenia have poor societal functioning, stigma, and a low quality of life, among other things. Aside from that, the sickness is connected with a significant burden of social expenditures — both direct costs of hospitalisation and various forms of treatment as well as indirect costs related with lost productivity. As a result, increasing the prevention and treatment of schizophrenia is a top public health goal in this country (Taheri & Shabani, 2016).

During a recent study, Saghaei et al. (2021) announced that small changes in the reconstruction of psychiatric clinics, such as floor coverings, paint, furniture, etc., have changed the mood and ultimately patient satisfaction. Taheri and Shabani (2016) concluded that the design and use of healing gardens have positive effects on the health of the mentally ill and reduce stress, lower blood pressure, lower heart rate and reduce depression. Sharif Khajeh Pasha (2012) during a study stated that the use of natural light, colors and green space improves the process of schizophrenia patients. Nanda and Eisen (2011) stated that the installation of billboards and posters with vague, unrealistic or multi-concept images should be avoided, because inanimate images are unpleasant for the patient and cause negative reactions, irritation and headaches. Sadr and Arbabie (2004)'s research were based on the Schizophrenia patients' and healthy people's reaction (preference and disgust) to colors. Both groups prefer green and blue colors and show negative reaction to dark and grey colors.

Statement of Studies Purposes

1. Studying of cortical population that probably receives little attention.
2. Obtaining the criteria and standards that meet the needs of these patients
3. Considering the aesthetic and psychological issues about the design of therapy centers that has duty to provide treatment for patients.
4. Offering architectural model in order to has positive effects on mental disorders in schizophrenic patients.

Methodology

This study is syncretistic and interdisciplinary research (architecture and psychology) in which two common methods are used: library method and field method. Library method is used to attain theories related to quality of spatial realization, design standards, and also to use solutions such as design principles based on the psychological views. And Field studies and interviews with psychiatrists are used as a complementary method for acquaintance and understanding of the audience and the manner of keeping, treatment and access to mental expectations and needs of patients.

A Brief Look into the World of Schizophrenia

Schizophrenia is a chronic and debilitating illness affected one percent of population (Sadock, , Sadock ,2003) . Statistics shows that more than fifty percent of all mental hospital beds are occupied by patients with schizophrenia. Schizophrenia is a severe chronic psychological illness associated with impaired social and vocational disability (Haresabadi & Others ,2012) . The function of these patients in occupational, educational, social, interpersonal and self-care fields is disrupted and patient needs continual care in different and widespread sizes. So today, this disease as one of the most debilitating mental illnesses dedicated special places to itself in psychiatric communities. Schizophrenic patients live in two worlds at once: An imaginary world of his imagination that he formed on the basis of hallucinations and delusions and psychological needs and the other is the real world which he needs it to meet his physiological needs. The relation of these two worlds is established by reaction and mental mechanism. Delusions, hallucinations, impaired thought process, and sometimes bizarre behavior and unusual physical states, negative symptoms such as lack of pleasure, lack of will , silence and withdrawal are symptoms of this illness. Sometimes the patient knows himself under persecution of individuals or organizations, or perhaps knows himself as very important person, statesman, inventor, and artist. Sometimes illusion voices order him that too often he is forced to obey. And sometimes hear voices that some people are talking about him. The patient's speech is so often misunderstood. Suicide is the unpleasant complications of this disease. Fifty percent of patients (in the absence of proper treatment) attempt suicide and 10 percent of them ultimately die by suicide.

Architecture for Schizophrenic Patients

Each action requires a specific space. One cannot consider specified and stable form for all functions. Psychotherapy practice demands the place which is integration of spatial mobility and comfort. Objects seems floating to psychotic individuals with schizophrenia, And bare areas, for someone who is ill is bad. It should be tried to build construction with simple and valid forms and in the most simply, a series of spatial interactions was added to collection. Then the structure should be designed to provide all the needs of the patient. In designing Psychotherapy centers, one should be able to identify and use elements of environmental quality to improve treatment and introduce the environment of a madhouse as a healing environment not an environment for patient compulsory keeping. In this respect, the discussable subjects in architecture of treatment and maintenance centers specified to schizophrenic patients are as follow:

- i) The geometry and the form of space
- ii) Using the window and the Virtual Sky method
- iii) Designing space devoted to prayer therapy
- iv) Designing space devoted to yoga
- v) Designing the healing garden in environment
- vi) Designing a patio or indoors atrium in indoor
- vii) Designing a place to Psychiatry
- viii) Designing a Roof Garden

The Geometry and the Form of Space

Forms have psychological effects and information will be sent to the patient through the specified form. Each form has a specific movement. The form should be chosen in this usage in such a way that coordinated with the content space. Forms such as rectangular induce movements and instead forms such as square, induce the focus. By irregular forms, patients are forced to fantasize, while simple and symmetrical forms can induce equilibrium. However, concave form is inviting while convex form is repercussive. Finally, using the familiar form in the design helps the sick to create second home in new environment (Farasati, 2011).

Using the Window and the Virtual Sky Method in the Case That There is No Natural Light

This technique is a combination of art, photography; design, lighting and which is composed of a large number of LCD and in certain ways are produced as square tiles on the roof. Due to the glowing nature of this product, it provides a structure close to reality to the viewer. This natural scenic in the interior in addition to helping the beauty and elegance of environment, also has important properties in therapy. Studies show that these types of decoration in addition to having a beautiful visual sight also have been effective in reduction of patients' stress, creating relaxation, enhancing vitality and spirit and also to raise the threshold of irritability and fatigue. This system may be used in spaces with no windows and where natural lighting is required (Sharif Khajeh Pasha, 2012).



Figure 1: *Virtual Sky*

Design Space for Healing Prayer

Numerous studies have proven that prayer in the treatment of mental illness and preventing these illnesses is effective. Empirical research suggests that there is a negative relationship between beliefs and religious practices -such as prayer, pilgrimage and trust- and depression.

Hence, in patients with severe schizophrenia, treatment by prayer and veneration is very effective. To create theosophical and mystical atmosphere that provides spiritual and pastoral needs of the patient, the following are recommended:

- 1 – Designing a Semi-open space and related to nature
- 2 - Designing a stone platform for candlelight
- 3 - Designing a roofed platform as a place to pray
- 4 - The use of colored glass, for bringing spirituality into space
- 5 - Design of an artificial stream of water to create a pleasant voice of water and a sense of calm in the patient

Designing Space Devoted to Yoga

According to research conducted in America schizophrenic patients have responded positively to practice yoga, but due to their mental state at the acute stage of the disease, they need to take drugs to achieve stability. After consolidating their position, they are motivated to do yoga and receive presence of mind; this exercise gives them the confidence that they will soon abandon their medication. The benefits of yoga for patients with schizophrenia are as follows:

- Improving the precision and focus
- Improving thinking and insights and strengthening hopes

- Boosting confidence and positivism
- Strengthening the coordination of mind and physical body (body control)

Important items in designing interior space dedicated to yoga therapy:

- Use soft flooring on the interior floor
- Design large windows facing the gardens and colorful flowers
- Design large windows facing the Waterfront
- Use cool colors for painting interior walls
- Soft lighting and monochrome
- Lack of additional objects and furniture

The Healing Garden

In past centuries, green nature, sunlight and fresh air were requirements in therapeutic healing environment, from Health clinics in the Greek and Roman temples and monasteries of the Middle Ages to large urban hospitals in 17 and 18 centuries. Today, researchers have come to the conclusion that the nature without reduction of human energy draws his attention. Green space helps calm the mind, stimulates the senses, by reducing stress helps the body to be in balance, and helps person to guide his innate cure sources, and use his inner force to improve. It provides an environment that can help medical staff to treat patients better and create a quiet space, away from the interior, provides for visitors. Observations done by professor Rajer Ulrich in more than 100 green spaces in America, Britannia, Canada, Australia shows that if green spaces should be best and have the most effect, then following points should be considered:

- Locating green spaces in sight
- Accessibility
- Silence
- A sense of familiarity
- Comfort

Designing Patio and Atrium Inside of the Building

Nature therapy is considered as an integral part of a series of natural health therapies effective in dealing with depression and improving schizophrenic patients. However, in some climates (e.g. cold and dry climates) due to unfavorable weather conditions, using nature in all seasons is not possible. So designing space such as atrium or winter garden by a minimum area of 1,000 square meters in which the flowers, trees and shrubs are planted and grown, is considered suitable space for use of patients in 6 months of year (Sharif Khajeh Pasha,2012).



Figure2: Atrium

Designing of Department of Psychiatry

Psychiatric intensive care units designed to control abnormal behavior, mental illness. In general, in intensive care units' schizophrenia patients are treated whose recovery is poor in other units. The most common cause of admission in such sectors is violence. And period of admission is often less than a week. Using advanced technology and warning systems, locked entrance doors in order to control the entry and exit is feature of this section (Donyavi &, Shafighi, 2012) To provide a secure environment in ICUs important points should be considered in the design such as:

- Being visible all the part
- Being available the warning system
- Not placing Payable items in patient access.
- Providing anger management activities for patients such as punching bags
- Designing Safe Room: The room walls are covered with a thick cloth (Sharif Khajeh Pasha & Shaghaghi, 2012).

Designing Roof Garden

Schizophrenic patients should not know him excluded or withdrawal from society. Thus the schizophrenic mental patient care centers should be built in the city to raise Community spirit in these patients. American psychiatrists believe that indirect interaction with the urban landscape and visual communication with dynamic and mobility of elements in city such as moving vehicles and humans is as a treatment for these patients. Then we can use roof as a space to watch the urban landscape. Some points should be considered in designing roof garden as:

- Designing shelter with high altitude and installing glass partitions around the garden or on the roof to avoid being thrown down
- Planting grass and small plants
- Putting the plants grew on the columns and beams of the original building
- Beautiful and colorful Flooring
- Considering a space for sitting of patients or canopy to watch the Urban Landscape



Figure 3: Roof Garden

Conclusions

No doubt people are affected by the work environment or their lives the sensitivity of this issue will become clearer when human health is important. Health center design regardless of need for physical planning, require an innovative design for patient to admit the process of therapy willingly. Considering the aesthetic and psychological problems, especially in these centers which have the duty to treat certain mental illnesses are necessary to reinforce the desire to cure and prevent a depression. The main purpose of admission of schizophrenia patient is patient's safety maintenance and others. The exhaustion of caregivers of patients with schizophrenia is more than caregivers of other psychiatric disorders. The reason is that schizophrenic

patients generally had lower social functioning and regressive character building and destroyed social habits can be seen in most of them more than other patients. This reason prevents family members of keeping these patients at home. Similarly, keeping these patients at home imposes the psychological burden on families. Then designing special centers for the accommodation and treatment of these patients is essential and providing solutions to achieve basic standards According to the patients' needs during the treatment process should be a top priority of research projects. It is clear that designing of a functional and treatment sets is not adequate and to achieve the proposed objectives, other factors are involved. Elements that may appear to be intangible, directly affect the patient's spirit and quality of spaces. In this regard the following points are suggested as supplementary to material referred in the text:

- Use windows throughout the building and suitable interior design in order to access natural light and maximize the use of daylight
- The use of glass facades to create a good view to healing gardens in residential areas
- The composition of the biosphere of mental patients with nature, for liberation from enclosed spaces and bars.
- Easy access to the all sections by using suitable circulation system and transparent routing
- Good interior design for the purpose of improving patient safety and satisfaction.
- Suitable interior design to create a sense of intimacy, comfort and respect for the patient
- Space Segmentation should be that much that patients' needs to live individually or in association with others is considered
- In Designing, nursing stations should have complete knowledge of bedrooms If this is not possible all the rooms are monitored by camera and the nursing station and entrance hall should have glass walls to be fully visible and can be controlled
- Designing all sectors of health care with the capability of future development
- Making entrance typical one
- Designing a garden for planting flowers in the yard, as treatment by flowers is one of the easiest ways to treat depression patients. Flower is the symbol of joy and happiness.

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