



# Research on Psychological Healing Architectural Design in the Post-pandemic Era

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**Abstract.** People’s usual daily life and social order have been completely subverted by COVID-19, and their physical and mental health has been greatly affected. The intensification of the psychological crisis under the pandemic has triggered our rethinking of curative buildings. The current design of therapeutic buildings is mostly aimed at medical centers and curing physical diseases. Therefore, this study analyzed the psychology of people in the post-pandemic era from the perspective of psychological healing. It found that psychological recovery after COVID-19 required a long-term mechanism, and most people had the needs for individual stress release, improving the living environment and flexible space. Finally, from structural function, spatial function, colour function and horticultural function, it also analyzed how the healing architecture could meet people’s psychological needs in order to help the people’s physical and mental recovery and harmonious social development after the pandemic.

**Keywords:** post-pandemic era · healing architecture · psychological crisis · spatial design

## 1 Introduction

COVID-19, which has lasted for more than two years, has also affected people’s mental health. According to the Global Daily in March this year, WHO said that in the first year of COVID-19, the global prevalence of anxiety and depression increased by 25%, and young people were particularly affected. According to a scientific briefing issued by WHO, one explanation for this increase is that the social isolation caused by the pandemic has brought unprecedented psychological pressure.

The intensification of the psychological crisis under the pandemic is an “invisible” challenge that every country has to face. Psychological healing is urgent! This triggers us to rethink the design of healing architecture. Home is the space where people stay the most after the outbreak of the pandemic. In the current normalised pandemic prevention and control, this paper focuses on how to integrate psychological healing into the redesign of urban residential buildings to improve the urban living environment in the post-pandemic era and achieve the purpose of physical and mental health and harmonious social development of residents.

## 2 Overview of Healing Architecture

Throughout history, human beings have been committed to creating a better environment for human beings through architecture. There are many ways to achieve this goal, among which hospital buildings are an important area that contribute to human health, but there are many other buildings that can provide a healing experience for our environment. This emerging healing building, as a way to build better buildings and a better environment for human beings, is just beginning to emerge. Esa Piironen discusses healing from different aspects such as public opinion, hospital design, developing healing architecture, environmental psychology, neuroscience, and the design elements of healing architecture (light, noise, air, nature, colour, form, scale and proportion, ergonomics, materials, atmosphere). As a new architectural paradigm, sexual architecture is the cause, design factors and future development. Esa Piironen also pointed out that in the present and the future, the healthy design will become one of the new focuses of architectural design and a new direction in future architectural design, and healing architecture will become a new paradigm of future architectural design [1].

## 3 Psychological Status and Needs of the Population in the Post-pandemic Era

### 3.1 Psychological Situation

Research by scholars such as Su Binyuan shows that depression, obsessive-compulsive and interpersonal sensitivity are the most prominent psychological symptom reactions of the population during the pandemic [2]. A recent retrospective study analyzed data on 24 pandemics including SARS, Ebola, H1N1 influenza, MERS and found that: In general, the immediate effects of disasters on people's psychology are less pronounced in the three months to several years after the disaster. For most people, symptoms also subside over time and life slowly gets back on track. However, some people may experience post-traumatic stress disorder syndrome, depression or anxiety, etc. [3]. Therefore, psychological recovery after major public emergencies requires a long-term mechanism [2].

### 3.2 Psychological Needs

- (1) The need for individual stress release

Research shows that in the post-pandemic era, people's physical and psychological pressures are constantly expanding and fermenting in the repeated shocks of the pandemic, and individual pressure urgently needs to be released [4]. Therefore, curative buildings should no longer be limited to patients or disabled people, but should be targeted at every physically and mentally traumatised person in the post-pandemic era.

- (2) The need for improving the living environment



**Fig. 1.** Yongtai Ancient Village

Community is the basic unit of urban management in China. Most of the lives of residents depend on the community, and the environment in the community is also directly reflected in the lives of residents. The daily living environment is the most directly affecting people's physical and mental health, and the environment has a huge impact on people's physical and mental health. In the post-pandemic era, it has become an important proposition to upgrade the living environment that is conducive to physical and mental healing.

### (3) The need for flexible space

Although the domestic pandemic is stable at present, the pandemic prevention and control measures cannot be relaxed, such as office, study, socialisation, etc. cannot relax the requirements for pandemic prevention measures such as "safe distance". Therefore, there is a surge in the need for flexible and sustainable flexible space that can not only meet people's needs for being close to nature and going out, but also effectively keep the distance from pandemic prevention [5]. Proper application will effectively broaden the safe social space.

## 4 Healing Architectural Design Concept

### 4.1 Structural Function

Architectural design not only has three dimensions: aesthetics, technology and economics, but more importantly, the fourth dimension: human nature. In addition to food, clothing, housing and transportation, people also need emotional communication, information exchange, etc. All these activities need to be carried out in a specific environment, so creating an emotional and humanised living structure is necessary for psychological healing in the current and future of pandemic prevention and control.

Figure 1 shows Yongtai Ancient Village. This architectural complex with a history of more than 1,000 years maintains the simple tradition of life of the Chinese people: to give the family a place to settle down. Figure 2 presents the apartment building "251 1st" designed by ODA. Through the ingenious terraced design, the traditional form of apartment building has been broken, so that every family has a large terrace. While



**Fig. 2.** The Apartment Building “251 1st”



**Fig. 3.** Beverly Hills Courtyard

enjoying the sun, it also removes barriers between people and makes neighbours closer. Figure 3 displays MAD’s “Beverly Hills Courtyard” located in Los Angeles. The design concept of this project is to let different people live here, share a yard, feel nature every day, and gradually form a tribe. While protecting the privacy of residents, it also makes them feel the warmth of community.

In the structural design of residential buildings, we can learn from the design concepts of Figs. 1 to 3 to extend the terrace or shared courtyard to create emotional neighbourhood relationships, so that isolation also has a “temperature” at home. In this way, psychological problems such as depression, loneliness, and interpersonal sensitivity caused by real pressures such as home isolation can be alleviated.

## **4.2 Spatial Function**

### **4.2.1 Safety Protection**

Entry space is the first line of defence and the most important zone in the space. It should be designed as an independent porch, isolated from other space areas, appropriately increase ultraviolet lighting design and expand the placement area space, and isolate all items in contact with the outside world from the interior for separate design. This is a large process. It reduces the possibility of viral infection and improves the sense of security.

### **4.2.2 Reconstruction of Living Room Function**

In order to meet the needs of home isolation, the living room, as a variety of living places, should be endowed with multi-functional attributes and designed as a compound space for learning areas, entertainment areas, fitness areas and family gatherings. First of all, after the disaster, people will yearn for the sense of power brought by light [6]. Large floor-to-ceiling windows can ensure that households have full contact with sunlight, which can soothe their mood and improve their health. Second, using intelligent lighting design technology, it can automatically adjust the brightness and colour of the light according to different needs. Third, set aside enough space for recreation or exercise, which is conducive to stress relief and immunity.

## **4.3 Colour Function**

Natural wood materials bring people closer to nature and make them feel more at ease; soft geometric structures improve living quality and create an artistic space environment; and bright and relaxed tones ensure that indoor spaces provide pleasant feelings at all times [7]. However, too many colours can make people feel complicated while too monotonous colours can also make people feel dull and lifeless. Therefore, the colour of the house should be based on monochrome, supplemented by one or two other colours. For example, a little green makes people comfortable, a little red colour makes people cheerful and pink can calm emotions.

## **4.4 Horticultural Function**

The natural environment is conducive to the recovery of emotional centres in marginal systems, resulting in health effects [8]. Green can play a role in the recovery of cognitive function. Gardens and nature can help people balance their ability and control [9].

As the only open space that can come into contact with the outside world, the balcony can be designed as a small healing landscape, planting appropriate flowers and green plants or vegetables. It can not only purify the air, but also relax the body and mind, and has a certain healing ability for people who have been in closed spaces for a long time.

## **5 Conclusion**

This paper rethinks healing architectural design from the perspective of mental health. It also focusses on the psychological needs of people in the post-pandemic era and how

healing buildings can meet these needs, so as to put forward the following solutions for residential design:

First, in order to release personal pressure and improve the living environment, we can extend the terrace or share the courtyard in the residential building structure design to create an emotional neighbourhood relationship. Natural wood materials, soft geometric structures and bright tones can also be used to ensure that the indoor space brings pleasure at any time or use the gardening activities of the balcony to get close to nature and relax.

Second, in order to meet the needs of indoor elastic space in the post-pandemic era, the indoor space will be transformed into an independent porch to improve security; the living room will be reconstructed into a compound space for learning, entertainment, fitness and family gatherings.

The limitation of this study is that there are fewer reference cases, and it is hoped that there will be more data and cases in future research. In addition, this study focusses on housing, and public space can be considered in the future.

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