The Role of The Physical Components Design for Healing Gardens in Promoting Psychological Health

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Abstract

This research examine the role of physical design elements for healing gardens in promoting the psychological health for the patients. Many studies had presented the role of the landscape in enhancing the psychological aspects of human, and its connection with outdoor environment. Previous studies also provided a definition of healing gardens design and components, but the study of the effect of physical components within healing gardens in promoting human psychological health, was not adequately addressed. This represented the research problem. As for the research hypothesis, it states that the physical components (natural and artificial components) for healing gardens will support the psychological environment and improve the quality of life for the patients. The research adopted descriptive analytical approach for a number of hospitals healing gardens, and their positive impact on the psychological health.

Keywords: Promoting, Psychological, Health, Environment.

1. Introduction

Contact with natural environment had a positive impact on the health and well-being for human beings, direct contact with nature positively affects the psychological and physical condition of people [1]. The characteristics of the surrounding natural environment enhance sense of place, the landscape design support achieving recreational, psychological, physical and social interactions [2]. However, technological development had led to a move away from nature, and designers focused on creating functional environments, modern technological medical devices that had dominated healing methods, instead of other psychological aspects healing such as gardens [3]. Therefore, healing gardens considered one of the functional necessities, according to modern medical theories, wherever they are found gardens it play an important and effective healing role for all their patients [4]. The design is characterized by many of the natural healing qualities that humans are instinctively attracted in addition to the results of psychological experiments, such as improving morale, well-being, and relieving stress and tension [5]. there were many studies in this field like (Belcakova et al. 2018) which discussed the effect of healing gardens in support patient treatment, socialization, gives a sense of control, engorge the physical movement; access and bonding with nature; in general, a variety of pleasant distractions. The study depended on questionnaire survey [6]. Another study of (van den Bosch and Bird 2018). It also reveals how environmental enrichment works (e.g. cognitive responses that improve behavioral and health outcomes) and how physical activity in nature reduces obesity and non-communicable disease. The research determined by surveying of epidemiological, biological and psychological methods [7]. Also (Hartig et al. 2014) focused on natural landscape regions of healing gardens lowered sadness because nature effectively captures people's attention and diverts negative thoughts [8]. But the study of the effect of physical components within healing gardens in promoting human psychological health was not adequately addressed. Which will represented in this research.

2. Environmental psychology

Environmental psychology is defined as the science that is concerned with the interrelationship between human behavior and the environment in which that behavior takes place through the application of human psychological knowledge to understand the interaction between humans and their environment in a way that improves the type of life and experience of humans and is concerned with how to form that environment, making it a friendly environment for humans, which in turn is reflected in
the formation of Environmentally friendly human behavior and solving social problems by strengthening environmental awareness. Perception is the first stage of the psychological relationship between human and his environment. The first theories of cognition in environmental psychology began in the forties of the last century with the emergence of the gestalt theory stressing that humans have an innate tendency to organize the simplest form of their perceptual world to form and formulate their own environmental perception. In general, environmental psychology is based in its study on the duality (human behavior - the environment) between influencing and being affected. The environment is the field or medium in which excitement or interaction occurs for any living being. Influential and affected to reach psychological and physiological comfort [9]. The psychological aspect is the psychological adjustment of the human being to reach happiness and satisfaction through the satisfaction of physiological needs. It is a dynamic interactive process between the social and natural environment and human behavior that includes change and modification to reach a balance between man and his environment. The environmental aspect includes the physical and biological components that are directly affecting social and natural conditions. Or indirectly with human behavior. Environmental psychology is concerned with the relationship between human behavior and the environment in which that behavior occurs, and this relationship constitutes the psychology of the individual. On mental processes such as thinking - imagination - meditation - emotion. As for the environment, it is concerned with the physical and social context surrounding the individual [10].

3. Healing Environment

The healing environment can be defined as the environment that provides nurturing, therapeutic effect, accelerate recovery, and psychological comfort for all its occupants, it depends on the possibility of inspiring which what known as self-healing resulting from reducing stress and psychological pressure on the person [11]. In order to understand the relationship between environment and human health the definition of WHO/UNEP for health is «a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity». Physical and psychological well-being are likewise included in such a comprehensive perspective. It refers to the importance of potential beneficial health consequences induced by positive emotions (such as quality of life, life satisfaction, sense of community, and happiness) and the minimization or absence of negative emotions (such as rage, loneliness, and consternation). Being in nature encourages physical activity and supports a healthy lifestyle, lowering the risk of a variety of ailments linked to modern urbanization (e.g. obesity, mental illness, stress, and so on). These healthful outdoor activities include not only sports, but also gardening, which involves growing, cultivating, and caring for plants.[12]

4. Healing Gardens

They are Gardens that are able to restore the psychological balance of humans so that they help them not to feel anxiety, stress and other pressures, and their presence is not limited to hospitals and health facilities only, but can be designed in various places such as residential areas, private homes, business centers and other places of gathering of the population, so that Any user can go to it and benefit from its features without restrictions because it has been designed in a way that makes it able to serve healthy and sick people at the same time [13] The components of the healing gardens include the following design components:

- Natural components that’s includes( plants, water, rocks, and animals)
- Artificial components that’s includes (Stairs and ramps, Entrances and gates, Statues and Sculptures, seating, lighting, signs, etc.)

5. Research Methodology

The research relied on the descriptive analytical method to study selected samples of healing gardens designed within hospitals to show the effect of the physical (Natural and Artificial components) on improving the psychological health. According to an analysis form prepared by the researchers to show the most important design elements for healing gardens and their positive impact on the mental health of the human being used.

5.1. The Retreat, York, England

It is a 200-year-old psychiatric facility located on the outskirts of York in the north of England, with 165 beds. The vast areas of the site offer a lot of ‘beauty and serenity (Figures 1). The site is bordered on three sides by a “large land” and the buildings at the northern end are clustered into a large, gently sloping lot. Each suite on the ground floor has access to the garden. The hospital was designed in the late eighteenth century and was originally eleven and a half acres, opened in May 1796 with two inpatient wards with separate walled wards, one for men and one for women, and a working farm on the site. The size of the drug has expanded and contracted over the years as ideas in psychiatry have changed and the resulting requirements have
evolved. The farm was an integral part of the hospital when it opened and produced most of the food for the facility. Believing in the value of participatory therapy, the management has worked on patient work in the farm fields and caring for animals along with the staff. The horticultural therapy garden was established in 1990. There are many avenues of different lengths. The proximity and orientation of the chairs allow either the easy flow of social interaction, or solitude, as desired. The balcony is covered with a glass roof that provides shelter in the indoor weather and dims the light in the middle of the day. One end of the veranda has tables again with a mixture of seating groups and the addition of light plastic chairs scattered around. The other terrace is a place for bowling and tennis courts, while the next one contains a cricket field. There are two asphalt paths running either side of the gardens and connecting paths at the top of each slope between the terraces, creating numerous circles at the foot of the veranda on the second terrace, where an elegant brick staircase descends from the buildings to the central lawn below. There are smaller garden spaces visible from the long-term suite rooms, which are intended for their use. The gardens are made more accessible by the addition of stairs. It is indicated that the gardens are open to all users, even from outside the hospital.

Figure 1. Retreat Garden.

5.2. Leichtag Family Healing Garden, Children's Hospital and Health Center, San Diego, California

It is the primary hub for children's health care in the San Diego. It accommodates more than 200,000 inpatient and outpatient visits annually. Opened in 1997, the garden (Figure 2) is located behind the hospital, on its northwest side. There are garden signs (in English and Spanish) beside the lifts off the main lobby. The garden can be seen from the nearby lobbies and staircases on several floors of the hospital. The garden is entirely enclosed in brightly painted curvilinear walls 4 to 7 feet high and inserted under a large tubular steel structure. Bougainvillea is planted at the base of this frame and covers at the end which is meant to be a huge vine-covered dinosaur; Colored surfaces (orange, dark blue, purple, green, yellow) provide a vibrant backdrop for the ceramic animals, fish and insects with which they are decorated and for the perennials planted around the garden border against the walls. The wall you first see upon entering is a deep blue and has stained glass installed in the patterns of the constellations, which glow when the afternoon and evening sun shines through. The other walls are
decorated with ceramic figures or have steel plates with slots in the shape of animals. In the center of the garden is a ceramic basin of sea horses, in which two tall nozzles spew water into two high ceramic pools. The sound of water could be heard all over the place. There is plenty of space to sit, varying by location, material, width, and feeling of containment.

Figure 2. Leichtag Family Garden

5.3. Chemainus British Columbia Canada Health Care Centre Chemainus

The small town of Chemainus is located on the east coast of Vancouver Island in British Columbia, Canada. Built in 1898, the center is located on the site of the city's first hospital overlooking Horseshoe Bay. The site contains five distinct gardens (Figure 3): Stroll, Prairie Garden, Adult Day Care Garden, Chemainus Garden, and Forest Garden. The garden known as Stroll uses a narrow strip along the south side of the building, which together with a parallel internal walkway creates a continuous walking loop. Large canopy trees, larch covered with vines, and the orientation of the building provide shade. Benches are arranged along this garden to take advantage of the various shade opportunities and to provide places for privacy. There is a water tap that users can operate independently by the roadside, the tool shed serves multiple purposes of garden supplies, and storage. During the winter, the trail system in this garden is loops of three that cut through the starting point and have benches arranged to allow for individual experiences or observation of group activities. Each area of the garden has a faucet that residents can turn on to water a specific part of the garden they are working on that day. The garden contains a large number of raised plant beds. For the Chemainus Garden it is a patio garden that accommodates a change of grade from the main floor to the basement level of about 10.3 feet. The upper part of the garden called Chemainus Garden was intended for residents who were in good physical health. Its design is intended to provide gardening opportunities for people using wheelchairs. Elevated plant pots designed to allow someone in a hurry. There is a movable workbench and table below in this space to provide more prep space for gardening projects. The garden has a large, open paved area to support a variety of group activities, or to be used by users in a chair or garden. A small stream path starts at the base of the gazebo and continues to a pond in the forest garden. The plants in this garden date back to the east coast of Vancouver Island. These two gardens are the only outside view of the residents’ rooms facing the courtyard. The occupants of these rooms are in good cognitive health.
5.4. Medical City Complex, Baghdad, Iraq

The Medical City complex in Baghdad is considered one of the old and distinguished health institutions in terms of its size and location and the large number of hospitals and health centers that are located within it. It has undergone many expansions and changes over the past years. It is considered one of the largest health institutions not only in Iraq but also in the Middle East. This institution, which is administratively affiliated to the Medical City Health Department, includes seven major hospitals, as well as a center for radiotherapy, nuclear medicine, a radiology institute, and finally, a hematology hospital, which is currently under construction. The Medical City complex, which occupies an area of approximately 90 acres, is located on the eastern side of the Tigris River (Al-Rusafa), in the Bab Al-Moadham area, 5.6 km north of the city center of Baghdad. Residential (Al-Aywadiya neighborhood), which ends with the Sarafiya Iron Bridge. The complex is bounded on the north by the Colleges of Medicine and Dentistry/University of Baghdad, and on the south by the Tigris River. All the hospitals and buildings of the complex overlook on the south side, as this point was taken into account when developing the initial designs for the complex to ensure that the facades of hospitals and buildings are exposed to sunlight from sunrise to sunset to provide heating and sterilization, especially for the lobbies and patient rooms that directly overlook the river. The site contains seven main gardens (Figures 4) with a total area of approximately 45 acres, in addition to separate secondary gardens. The site's gardens were planned and designed according to a pre-prepared design, and some changes and additions were made to these gardens by the site's administration at different times. As for the maintenance of gardens, it is the responsibility of the Services Division. The gardens lack shading elements as well as choosing trees that do not create much shade for those sitting under the trees in the height of summer. There are a large number of planting beds, lighting elements and waste containers but there are a limited number of seats. The gardens are multi-level, and the gardens overlooking the river provide a sense of psychological comfort. Among the negatives indicated on the site is the lack of parking spaces for patients and visitors, as well as the lack of accessibility due to the lack of signs.
6. Results

After the analytical study of the study cases, according to what was dealt with in the theoretical aspect, the research found the physical components (Natural and Artificial components) design for Healing gardens samples had a positive effect on psychological health according the table (1) and FIG. (5) describe the repetition of physical components in each samples. As shown in the analysis, it is clear that the first sample is more compliant with the requirements of healthy gardens.

Table 1. Physical components design for healing gardens samples effect on psychological health.

| The samples gardens                          | Physical components     | Psychological effect                                           |
|----------------------------------------------|-------------------------|----------------------------------------------------------------|
| The Retreat, York, England                   | Plants, X1              | Feeling comfortable, safe, familiar and stimulating the five senses |
|                                              | Shadings elements, X2   | Feeling comfortable and intimate                               |
|                                              | Stairs and ramps, X3    | Easy access and a sense of control                             |
|                                              | Walk ways, X4           | Easy access and a sense of control                             |
|                                              | Seating, X5             | Feeling in control, relaxed and encouraging social interaction |
|                                              | Gates and doors, X6     | Easy access and a sense of security and privacy                |
|                                              | Plant Ponds, X7         | Stimulating user activity                                      |
|                                              | Lighting elements, X8   | Feeling of safety and comfort                                  |
|                                              | Signs, X9               | Ease of access                                                 |
|                                              | Gates and doors, X6     | Easy access and a sense of security and privacy                |
|                                              | Colors, X10             | Joyful feeling                                                 |
|                                              | Waters fountain, X11    | Relaxing feel                                                   |
| Leichtag Family Healing Garden, Children's   | Plants and birds, X1    | Feeling comfortable, safe, familiar and stimulating the five senses |
| Hospital and Health Center, San Diego        | Lighting elements, X8   | Feeling of joyful and comfort                                  |
| California                                   | Small ceramic figures on the walls and animal figures, X12 | Encourage children play |
|                                              | Plant Ponds, X7         | Stimulate user Activity                                         |
| Chemainus British Columbia Canada - Health    | Lighting elements, X8   | Feeling of joyful and comfort                                  |
| Care Centre Chemainus                        | Seating, X5             | Feeling in control, relaxed and encouraging social interaction |
|                                              | Planting tools, X13     | Allow public interactions                                       |
Conclusions

- Availability of natural and artificial components gives the patients a sense of intimacy and spatial comfort.
- The presence of multiple colors gives a sense of joy.
- The presence of paths in the garden enhances its recreational capabilities, encourages the pleasure of walking and exercising in it, and gives the user a sense of control.
- The availability and clarity of signs makes the garden easily accessible.
- Availability of fences, entrances and gates in the garden gives it the features of safety and privacy and reduces intrusion and penetration.
- Availability of shaded green spaces and various images of water stimulates the five senses of the garden user.
- Increasing the density of plant cover in the garden gives it the property of quietness because it contributes to blocking noise from it.
- The presence of fences in the garden leads to protection from different types of pollution.
- Availability of seating in appropriate numbers and in close proximity that stimulates social interaction.
- The presence of lighting elements and their distribution well gives the user a sense of security.
- Attention to providing all the design components for this type of garden for the purpose of achieving an ideal hospital environment.
- Spreading awareness about the importance of having healing gardens.

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