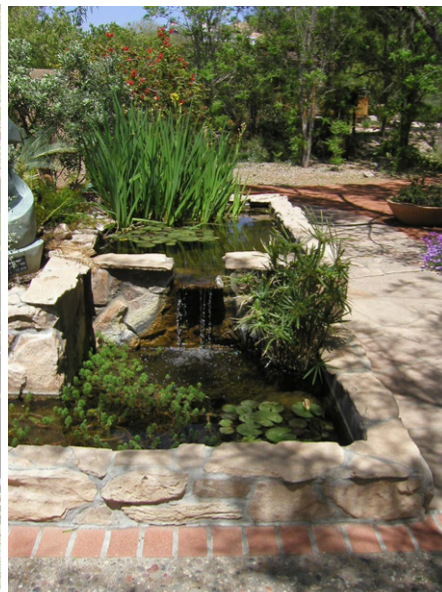# The Benefits of Plants for Human Health in Healthcare Settings

Ursula K. Schuch

Water features create focal points through sight and sound of moving water.

Summary

Gardens have multiple health benefits and have been a component of healthcare facilities through the ages. In the last 30 years, the benefits of nature, gardens, and garden views have been studied to document physical and mental health benefits of patients, staff, and visitors. Healing or therapeutic gardens are designed specifically to evoke positive effects on physical, mental, and spiritual health and to address the needs of those visiting the space. In this article, some concepts applicable to gardens in health care settings in the arid Southwest are discussed.

The knowledge that plants are beneficial for human health, especially to promote healing, has been used for hundreds of years (Cooper Marcus and Barnes, 1999). The practice of using nature and plants is integral to many cultures and has been incorporated in therapeutic treatments to restore people's health. Exposing patients to an environment with plants, fresh air, and sunlight were considered part of such health care treatments (Stigsdotter and Grahn, 2002). At the end of the twentieth century, health care providers concentrated almost exclusively on technology, medical specialization, and sterile conditions, abandoning the practice of using nature as a component of enhancing the mental and spiritual aspects of healing. Since the 1990's, empirical studies documented the multiple health benefits of patients and others who visit or view gardens or nature in healthcare facilities, and gardens are again being incorporated as a vital element in healthcare (Ulrich et al., 1991; Ulrich, 1999). Healing or therapeutic gardens are designed specifically to evoke positive effects on physical, mental, and spiritual health by meeting the needs of individuals. In fact, colleges and universities have created degree programs in horticulture therapy to provide structure and guidelines to support these practices.

Gardens and Plants for Human Health

In healthcare facilities, patients, staff, and visitors seek out gardens to take a break or rest, wait, allow visiting children to play, move or exercise, meet with others, or seek privacy and allow for relaxation and meditation (Cooper Marcus and

Barnes, 1999; Whitehouse et al., 2001). These green spaces are often called healing gardens as they provide a respite where people can recover, away from sterile inside spaces without natural light and sounds, and experience natural environmental features. This nurtures the relationship with nature that humans have evolved with and evokes positive feelings. The most important part of healing gardens are natural, green vegetation, flowers, and a water feature. Spaces where natural sounds such as bubbling water or birds can be heard are preferable to areas where traffic or other noise cannot be avoided. One element common to different definitions of a healing garden is it should be beneficial for the human mind, body, and spirit.

Specific outcomes of gardens, views of natural settings with plants, and access to nature in healthcare facilities have been documented and include physical, mental, and emotional health benefits. Following are some examples of the beneficial effects of window views of nature and/or access to well-designed garden spaces (Cooper Marcus and Barnes, 1999; Ulrich, 1999; Whitehouse et al, 2001):

- Patients have reduced stress, anxiety, pain, and depression.
- Patients have faster recovery, fewer complications, and shorter hospital stays.
- Patients report greater satisfaction with their care.
- Patients have a greater sense of control if they can visit a garden space.
- Staff report less stress, improved performance and productivity, and improved satisfaction with the workplace.
- Physical and mental well-being of patients, staff, and visitors is improved.

Realistic art of peaceful natural settings can have similar positive effects as those described for views of gardens or garden visits.

Indoors, plants in patient rooms have been documented to reduce stress for patients and staff, and improve the workplace quality of staff. However, flowers and potted plants should be excluded from rooms and areas where immunocompromised patients are cared for (CDC, 2003). However, the use quality artificial or faux foliage arranged to appear as live plants has been shown to achieve many of the same positive impacts.

Garden Concepts for Healthcare Facilities

Following are some concepts on how plants can improve the environment for residents, staff, and visitors in healthcare facilities (Cooper Marcus and Barnes, 1999; Stigsdotter and Grahn, 2002). Once an area has been identified as a future garden space, several questions need to be answered before beginning the design process.

- Who are the intended user groups for the garden and what are their needs?
- Will they use the space for walking, rehabilitation, or horticultural therapy where patients work with plants?
- Will they use the garden for relaxation, contemplation, viewing, listening, touching, and smelling?
- What characteristics are desired? These may include security, safety, seclusion, meeting with others, exposure or protection from the elements, benches, water features, walkways with different surfaces, plants that attract birds, butterflies or other wildlife, or garden beds where people can actively work.

Functional, aesthetic, and safety considerations require an evaluation of a future garden site that includes the geographic location, climate, surrounding buildings, views, prevalent wind, sunny versus shady areas, and accessibility during different seasons and the time of day or night.

There are many types of gardens that can serve the purpose of healing (Stigsdotter and Grahn, 2002). Gardens can mimic

This ramada with a seating area for several people is accessible from one direction and shielded with gabion walls from two sides.

Informal seating and the bell in the foreground provide interest for people moving in this area.

Plants for Healthcare Settings

Plants used in healthcare settings need to be adapted to the local climate and the microclimate of the space. The smaller the garden space, the greater the effect of the surrounding buildings and hardscape will be. Multistory buildings and courtyards between buildings may be shaded for extended periods of the day and may limit the growth potential of some plants that require full sun. Buildings, parking lots and other hardscape surfaces can increase temperatures during the summer, and affected garden spaces may need heat tolerant plants. Good drainage is required for most plants to thrive and small spaces surrounded by buildings and hardscapes may need remediation of compacted soils to ensure proper drainage. Scale of the adjacent building must also be considered so the garden has an impact and does not look out of proportion.

General properties of plants that are appropriate for healthcare facilities include:

- Trees with canopies that provide dappled or dense shade, rustling foliage
- Trees with fall color and little or no foliage in winter (pistache, sycamore)
- Trees and other plants with showy flowers (crape myrtle, magnolia, palo verde)
- Plants attracting butterflies and hummingbirds (butterfly bush, salvias, chuparosa, Mexican honeysuckle)
- Plants with fragrant flowers or foliage (citrus, pine trees, lavender, rosemary, mint and other herbs) and vibrant colors
- Plants suggesting movement (ornamental grasses)
- Plants with sculptural features (saguaro, agave, bear grass, bamboo)
- Plants with healing properties (Aloe vera, rosemary, mint)

the natural surroundings of a facility, using native plants and creating a space similar to an undisturbed landscape. The choice and placement of plants can evoke a cultural or historical setting, tying into the social background of the location. A garden can imply a serene place for quiet contemplation, or can be the center of gatherings.

While plants serve as the backbone of a garden, benches, chairs or informal seating spaces are useful for visitors to linger and choose spaces for solitude or gathering with others. Water features such as bird baths, fountains, small ponds, or moving water add visual interest and sound which is often calming and may attract wildlife. Sculptures, individual rocks or accent plants can serve as a focal point or destination. Shade is an important element for gardens in the Southwest where many locations have more than 300 days of sunny weather. Many types of permanent shade structures or plants can be installed to serve this purpose and provide a unique link to the regional environment.

Paths lead through different levels of primarily native vegetation of flowering ground covers, shrubs, and tree canopy and lead to a circular informal seating area.

Some healthcare facilities may be concerned about allergy causing pollen (African sumac, olive) and could limit those plants to minimize allergic reactions. Poisonous plants (oleander, Texas mountain laurel), plants with spines or thorns (cacti, Texas ebony, some mesquite and acacia), sharp or armed edges (grasses, some agave, desert spoon) and plants causing dermatitis (euphorbias, Cape plumbago) should be excluded from areas designed for visitors who might accidentally ingest or touch plants because they are unable to understand the potential harm (DANR, Univ. of Calif.).

Gardens in healthcare settings are important components that serve the well-being of all people occupying or visiting the facility. The plant palette for these gardens includes many species that are adapted to the local microclimate and that create an environment conducive to restore or maintain physical, spiritual, and mental health.

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Acknowledgement

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