CHAPTER 6

CONCLUSION

6.1 CONCLUSION

The empirical evidence examined in the research suggests that the notions of therapeutic or patient-friendly environments held by participants in the study were based upon three conceptual visions of the role and function of the built environments of health care facilities. They are: the notion of homeliness, the notion of physical and visual clarity and accessibility through the spaces, and the notion of supportive environments as discussed in the answers to the research questions below.

A. To outline the consequence of built environment on the patient’s and relative’s experiences and behavioral responses in the oncology department /centre.

The various reports received from the separate parts of this research, including respondents’ interviews, results from the questionnaire survey, correlated syntax and respondents score analysis and from the series of researcher’s observations to provide evidence of respondents’ attitudes and reactions to their perception of built environments within the cancer hospital premises. The design of such environments played an important role in the experience of patients, and their visitors and families. The study found that the patients’ journey and resulting experience were influenced by the nature of the built and open spaces that they encountered along their way or in the place where they spend their time. Within the context of a health care
complex, these spaces are the elemental components of the patient’s journey from home to hospital and back. These spaces are also represented by the areas within a building or between buildings that link them and provide access to each of the separate areas within them.

The empirical evidence based on users’ preference and evaluation to the built environment within the case studies states that therapeutic needs are essential yet subjective based on the functional zones within the hospitals. The following are the respondents score value of high level of significance.

**Outpatient Area**

- The patient requirement for privacy in waiting and consultation rooms with respondents (patients) score of 75%, view to outdoor and presence of nature 70%, respectively.
- The relatives accompanying the patients required inviting appearance with respondent’s score of 75%, apart from good ergonomics, physical comfort in the waiting area and legibility of place with the score of 72% by the respondents.
- The outpatient staff respondents predominantly preferred buildings with good appearance or image and good indoor working facility with score values of 75% and 71% respectively.

**Diagnostic Area**

- The diagnostic patient respondents essentially required most of the therapeutic design aspects as identified with the following score values – privacy and dignity 75%, good
appearance 74% and positive distraction (while in treatment) in terms of therapeutic indoor and outdoor elements with the preference values of 74% and 65%, respectively.

- Relative respondents required soothing view to nature and access to outdoor while waiting, with the score values of 75% and 67%, respectively.

**Inpatient Area**

- The patient respondents staying in the hospital were sensitive to the built environment and required the ward layout to have a high level of privacy with need value of 75%, good view to the outdoor 74%, physical comfort and control 78% and legibility of place 60%.

- The relative respondents visiting the patients recommended an inviting appearance with score value 75% and aesthetic with interior appearance score value of 75%.

- The inpatient staff were sensitive to the building demanding good appearance and image of the hospital by providing score value of 74%, need for nature 60% and efficient interior work environment by 70%.

**B. Identification of therapeutic (friendly) aspects in the hospital building as per the patient, relatives and treating staff response.**

The empirical evidence suggests that patients and their families had a varied perception of the hospital built environments. The study validates seven common themes representing the perception of patients and their
families. Spatial requirements in the cancer care hospital based on the research are:

- A sense of personal space.
- A homely, welcoming atmosphere.
- An environment that meets the needs of visitors and family.
- Good physical design in terms of usability, accessibility and controllability.
- Access to external areas that promotes a sense of normality.
- Supportive environment for effective communication between patients, staff and relatives.
- Facilities for religious conviction and leisure.

C. Identification and classification of architectural design elements – therapeutic (friendly) environment in the hospital as per the patient, relatives and treating staff response.

A framework for appraising potential designs for the built health care environment in terms of its internal and external environments in the three zones, namely, outpatient area, diagnostic area, and inpatient area are based on two considerations-health conditions and the types of users. The list of architectural design elements below had been validated from the considered viewpoints discussed in the study.

Types of user: Each design element should consider the type of patient and relatives to the extent which the design caters. e.g., elderly, adults, adolescents, children, male/female.

Health condition: the health condition of the users especially the patients, impacts their perception of the design elements. The respective
element should consider patients’ health factors or condition that resulted in their admission to the hospital and their relatives’ needs e.g. the extent to which the design caters for age (young or old age) disability (impairment, poor eyesight, hearing difficulties), and sex (male and female).

The list of architectural design elements are stated below and discussed and dealt in the research study, are the basic and essential therapeutic requirements in the cancer care buildings and these aspects serve as the design guidelines, mandatory to create supportive environment for the users.

- Image and scale
- Privacy and dignity
- View to the outdoor
- Presence of nature
- Physical comfort and control
- Legibility of place

D. The spatial requirement of cancer built environment associated with the therapeutic design elements, based on the patients and relatives physical, physiological and social interacts.

The primary spatial requirements of the users need in architectural space is to communicate with each other and were evident in case studies, where, common functional areas like the waiting area, corridors, lobby or reception area and even parking spaces, etc, are used for communication. Hence, apart from clinical and functional spaces, it is essential for the building to consciously design or create space for social interaction to improve further the healing quality of the built environment. Spaces like courts, atrium, and space between the functional area, garden, access to open area or landscape are few that are effective for the cause.
Apart from indoor and outdoor therapeutic functional spaces, the quality of the existing built environment and outdoor spaces is to enhance by means of finishes using colour, textural finishes, presence of art work, mural, pictures etc. Other ancillary facilities like, accommodation for visitors, children’s play area, locker facilities for the patients’ belongings, therapeutic recreational space and furniture ergonomics responding to user needs in all the patient use area.

6.2 GUIDELINES AND RECOMMENDATION

The set of guidelines and recommendations for the three functional areas (Outpatient area, Diagnostic area and Inpatient area) in the cancer care facilities, based on the analytical research are stated below:

GUIDELINES

Outpatient Area

- The entrance of the outpatient area to be non-institutional, inviting and large enough to accommodate the outpatient relatives and patients.
- The presence of nature, landscape court / atrium / outdoor open space located near the waiting area is required.
- Good ergonomic and furniture layout in the waiting area is to be provided secured comfort and control for the users.
- View to the outdoor by means of windows or glazed doors to be located near the waiting and reception area.
- Degree of privacy in the waiting area to be established by means of location of the seating area, seating arrangement and furniture ergonomics.
Diagnostic Area

- The visual clarity of the place in terms of simple design layout or provisions of signs, symbols is to be provided for the need of the user, especially for the relatives and patients visiting the Diagnostic area in the cancer care facilities.

- Good indoor facilities like comfortable seating, rest room facilities are to be provided for waiting relatives of day care patients. For the patients’ utility, adequate change rooms, locker facilities, toilets are needed within the cancer treatment unit.

- The layout of the diagnostic area is to consider the privacy of the treatment room to maintain the self-esteem and dignity of the treating cancer patients who are in emotional turmoil.

- Presence of nature and link to outdoor either through window, door or court is to be provided for positive distraction and comfort to the users including the medical staff.

- View to nature or outdoor scene is required in the treatment room and is to be compatible with medical isolation and safety norms.

Inpatient Area

- The cancer care ward in the inpatient area to have a comfortable and calming interior appearance and finish in terms of art work, colour, and facilities like storage space for patient’s belongings.
- Single bed or multi bed room with a maximum of six or four in a ward is required by the cancer patients for having good control, privacy and comfort of the environment, instead of a large general ward.

- The need for physical control and independence within the cancer ward unit, and the choice to control the indoor microclimate is to be included within the design of the wards in order to enhance the therapeutic ambience of the ward.

- The presence of independent rooms or spaces within the cancer-care wards area to be incorporated to enable relatives’ patients and even the medical staff to have private and quiet social interaction or discussion between them.

- The ward design layout (both general and private room types) is to synchronize the bed arrangement with a view to the outdoor or to nature apart from providing a natural air and light within the ward. The user also prefers the presence of artificial microclimate, especially during extreme climatic conditions, yet, the option for natural ventilation and lighting is essential.

**Recommendation**

- The therapeutic design aspects derived and identified in the research should be utilized as a checklist or evaluation template to estimate the existing and newly constructed cancer hospitals for their competence and compliance to users’ therapeutic needs.
The Ministry of Health and Family Welfare, India, the governing body of India monitoring the healthcare delivery system of the nation, should disseminate the need and integrate physical dimension and spatial requirement of the therapeutic built environment into all healthcare buildings through policies, bylaws etc.

The Bureau of Indian Standards should update the existing building standards for hospital design and include an independent chapter or section on therapeutic spatial requirements like day room, recreation room, worship room etc. in the hospital building standards.

The Bureau of Indian Standards is to study and research further on the identified therapeutic elements from the research, their spatial requirements and develop a detailed area statement of these facilities and spaces specific to the size and type of healthcare buildings.

The therapeutic design aspects validated in the research to be utilized as therapeutic indicators by the monitoring agencies and organization of healthcare buildings as a tool to check the compatibility and reliability of the building in creating a ‘humane’ environment.

6.3 FUTURE IMPLICATION

This research is the first of its kind to study the building environment and human behavior in the context of Indian healthcare buildings and even so, for the aspect of therapeutic built environment in the cancer care built environment. The research on the therapeutic aspect in the cancer care
environment is a new conscious perspective in Indian hospital planning and is to be incorporated in all types of specialty hospital buildings. The research topic is a forerunner in identifying the significance and impact of the building on the human physical and physiological needs in Indian hospitals; the area of the study is complex and colossal and hence the research is restricted to Chennai with the focus on cancer care, while the intricacy and enormity of the issue is to be realized in future research.

The research was focused on the cancer care facilities in Chennai, Tamil Nadu; therefore, the work is representative of the users’ therapeutic needs specific to the context. The future implications of the research are:

- To consider the research as a developing pilot work for the study of further therapeutic needs for cancer care facilities at various context - from city to region, to state and to national level.
- To serve as a design evaluation model, to provide insight into the degree of therapeutic need of the user degree in pre and post occupancy assessment.
- To further extend the study to physically map and quantify the specific therapeutic architectural spaces required in the Outpatient, Diagnostic and Inpatient areas of the cancer care facilities.
- Extension of the research further on the wider scale - regional and national level on the cancer specialty.
- To test, evaluate and integrate the therapeutic design aspects and elements in the existing or new cancer specialties.
To decipher the wide diversity of citizens, and community views, including ethnic groups, socioeconomic, culturally relevant outlook as cancer healthcare design variables.

Extension of the therapeutic need enquiry to other clinical specialties based on the illness or on the user types (children, older people, etc).

Future research is required to study the therapeutic needs in healthcare facilities at the primary and secondary care level of the Indian healthcare system.

Future enquiry into the therapeutic needs to be made multidisciplinary by including disciplines like management, medicine, art, product design etc.

Increase the level of enquiry and expand the area of study to dovetail future Medicare developments and subsequent changes in the socio-physical demand of the user.

Future research should include health impact analysis of the built health care environment upon the health status of the local community.

The research concludes that the need for satisfaction is largely determined by three factors, namely, the strength of the needs and intensity of gratification, the socialized behavior patterns in conjunction with the person’s previous experience of need gratification, and the perceived importance of the need. In reality, each person responds to a need as an organized whole and each processes is interconnected with the others.

In summary, the research has explicitly highlighted the users’ preference and experience in a cancer care environment. However, the ecology of healthcare is necessarily a changing subject for research and
evaluation, and improving the patient’s experience will continue to be an issue for those involved directly and indirectly in healthcare. What is clear is that many of the principles that were adopted in planning this new environment, including those associated with the planning and consultation process, the integration of humane value, and the recognition of the fundamental and changing needs of the user groups, will continue to inform future developments in this and other care environments.