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Healing Environment in Paediatric Wards: From research to practice

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Abstract

Best practices was created to helps designers in the creation of more conducive healing environment in paediatric wards. This is benefited to designers in creating spaces not only base on their assumptions. The evaluation focuses the newer paediatric wards in the Klang Valley area. Case study is the strategy involved 3 paediatric wards. Personal on-site observation and evaluation, questionnaires, and documentations are the selected methods. This paper revealed that best practices suggested were not fully implemented. Therefore, it is best for all bodies related to should be made aware of their obligations for a better quality environment in paediatric wards.

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Keywords: Best practices; healing environment; case study

1. Introduction

Designing and established the hospital building by creation of more conducive healing environment in paediatric wards had been cautioned to designers in their design process, so as not to base on their assumptions about human behaviour. This is to avoid recurring design mistakes so as to reduce the Length of Stay (LOS) amongst patients. Interesting framework exploring the science of healing has developed the "Optimal Healing Environment" (OHE). The Samueli Institute in the United States is a medical research organization, described it as "the social, psychological, physical, spiritual, and behavioral components of healthcare support and stimulate the body's innate capacity to heal itself"

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(Ananth, 2008, p. 274). The wholesome approach involved both the Inner and Outer Environment as shown in Figure 1. The framework somehow is a good approach for designers to consider in order to create a better healing environment. In 1990s, the Malaysian Health Ministry highlighted the guidelines for creating hospitals for a more child-friendly, cheerful and safe hospital (Mathews, 1999). However has the Malaysian Health Ministry been successfully implemented as such guidelines? What are the obstacles faced if any, towards the positive implementation? The aim of the present study is to evaluate the healing environment created in newer paediatric wards (built after 2000), in the Klang Valley area, as per best practices suggested by research findings very much earlier. The main objective of the study being to verify the common belief that positive suggestions for a more conducive healing environment have not been heeded, and seemed to fall onto deaf ears of designers / building providers, etc.

2. Literature review

This section focuses literatures reviewed relevant to the study, such as, on the design, designers’ role and best practices. As mentioned earlier, the OHE would be the best approach for designers to consider in the creation of healing environment. The OHE emphasized both the inner and the outer environment that consists of seven elements - *Developing Healing Intention, Experiencing Personal Wholeness, Cultivating Healing Relationship, Practicing Healthy Lifestyles, Applying Collaborative Medicine, Creating Healing Organization* and *Building Healing Spaces* (BHS) as shown in Figure 1. However, researcher has modified the OHE framework base on their architectural background. The proposed theoretical framework also consist of *ambient, safety, ergonomic* and *therapies* which concerned the interior and exterior as shown in Figure 2.

| Dev. Healing Intention | Experiencing Personal Wholeness | Cultivating Healing Relationship | Practicing Healthy Lifestyles | Applying Collaborative Medicine | Creating Healing Organisation | Building Healing Spaces |
|---|--|--|---|---|---|--|
| Expectation Hope Understanding Belief | Mind Body Spirit Energy | Compassion Empathy Social Support Communication | Diet Exercise Relaxation Balance | Conventional Complementary Traditional Integrative | Leadership Mission Culture Teamwork Technology Evaluation Service | Nature Colour Light Artwork Architecture Aroma Music |
| Enhance Awareness | Enhance Integration | Enhance Caring | Enhance Awareness | Enhance Medical Care | Enhance Process & Structure | Enhance Sensory Input |
| INNER ENVIRONMENT | | | OUTER ENVIRONMENT | | | |
| Where social, psychological, physical, spiritual and behavioral components of healthcare support and stimulate the body's innate capacity to heal itself. | | | | | | |

Fig. 1. The Optimal Healing Environment (OHE) Framework

Source: Sita Ananth (2008)

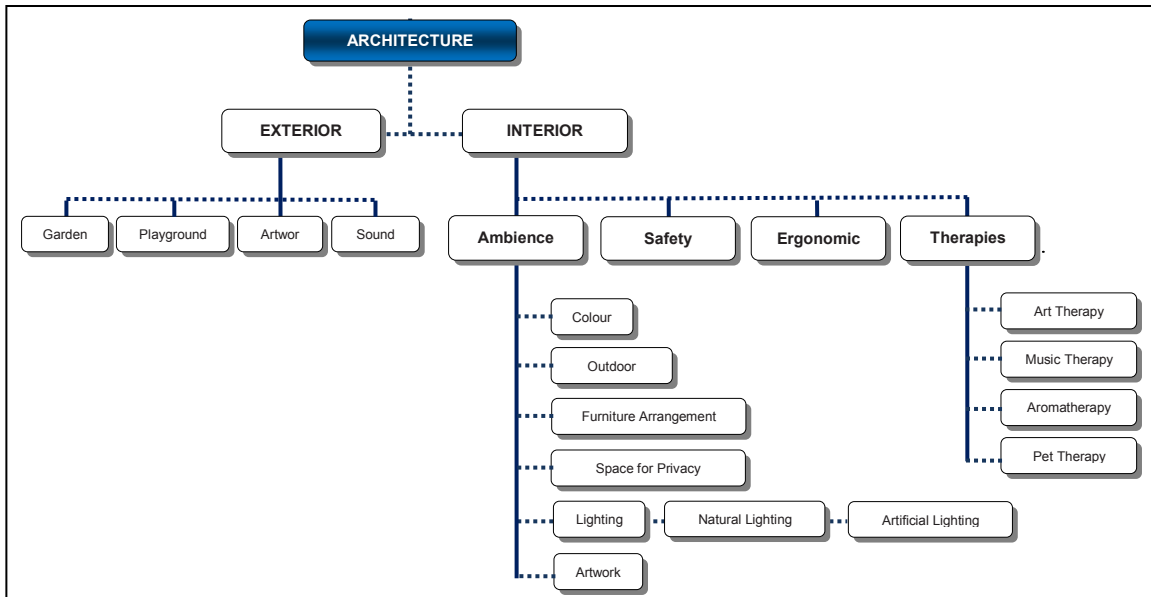


Fig. 2. Modified Framework Based on OHE
Source: Sita Ananth (2008)

2.1. Exterior and interior architecture

A healing garden benefited to patients, families and staffs as reported by several studies. A Post-Occupancy Evaluation (POE) was done by Whitehouse, et. al. (2001) revealed that healing garden is a place to reducing stress, restoring hope and energy, and increasing consumer satisfaction. Based on the findings and recommendations, they highlighted elements that can be used as a guide for the future planning, design, building, and subsequent evaluation of garden to promote a better use of the garden. For examples, the healthcare provider should educated their staffs as to the purpose of the garden, who it is for, and how to incorporate the use of the garden into patient and family care and how families are benefiting from the garden is essential. The healthcare provider should ensure the colorful brochures with pictures and information about the garden to be included in the patient information book in hospital rooms. The information as to helps the families and patients know about the garden and are able to have access to it and clearly maps on how to get there. The elevators and other high-traffic areas could be a place where installing posters about the garden. They also suggested that the healthcare provider should assigning volunteers and hospital interns to bring patients and families to visit the garden would increase its use and accessibility. Meanwhile, Fouts and Gabay (2008) opined that patient environment should designed to convey wellness and comfort in all dimensions especially to mind, body and spirit. Progressively, the research is demonstrating that environmental factors such as natural light, pleasant views, artwork, and even use of certain colors. They stressed that the potential to transform a highly stressful and frightening emotion of the patients encounter into the imparts of powerful healing and therapeutic effect. Implemented effectively, healing-focused and evidence-based design can potentially improve a cancer patient's ability to cope with the emotional and physical aspects of the disease and its treatment and, ultimately, the environment increase patient satisfaction. In relation to safety Anonymous (2003) concurred that children dislike to be hospitalised and parents wondering what could happen there. However, Anonymous offered tips to parents in making their youngster's hospital visit safe and successful while staying in the Yale-New Haven Children's Hospital. They provides free information for

both the parents and their children on proper hospital manners called "Pediatric Patient Safety: Keeping Children Safe in the Hospital. They provides the information for parents on getting ready for their hospital visit, communicating with caregivers, making sure the child has proper identification in the hospital, preparing for surgery and emergency visits, controlling infections, and reducing medical errors.

In the healing environments of healthcare, Eichner (2003) stressed particularly important to take care of those who care for the ill and injured, such as nurses and other staffs. Healthcare provider should provides them with a healthy and safe workplace. Eichner adding the healthcare provider could gather financial benefits by incorporating ergonomic principles in the planning of healthcare environments, whether during new construction or in existing facilities undergoing renovation. He also highlighted that worker absenteeism due to injuries and reduce workers' compensation costs with improved ergonomic conditions in the workplace. Hence, he suggested that ergonomics should considered the older, disabled, or pregnant workers, to perform their duties and remain on the job for longer periods of time by provides facilities that could can make healthcare environments more user-friendly for patients and visitors as well. In terms of alternative therapies in the paediatric wards, effectiveness of such therapy such as art therapy, music therapy, aromatherapy and pet therapy positively contributed the healing process. Mallay (2002), Stewart (2009), Vappa (2002) and Morrison (2007) found that it was simple and cost effective interventions, which reduced depression and helped patient heal faster.

3. Research design

3.1. Strategy

The strategy for the research design was case studies that involved 3 paediatric wards located in the Klang Valley area. Overall, 80 patients and 80 staffs were involved in this research as shown in Table 1. The newer hospital was the benchmark for the selection of the hospitals and it built after 2000 in non-urban area.

Table 1. Hospitals involved based on the year built and number of respondent

| | Hospitals | year built | Area | Respondent(staff) | Respondent (patients) |
|------------------|-----------|------------|-----------|-------------------|-----------------------|
| 1. | SD | 2005 | Non-Urban | 26 | 29 |
| 2. | AG | 2006 | Non-Urban | 27 | 29 |
| 3. | SB | 2007 | Non-Urban | 27 | 22 |
| Total Respondent | | | | 80 | 80 |

3.2. Methodology

The methodology for data collection involved questionnaires, evaluation, personal on-site observation and documentations.

3.2.1. AEDET Evolution and ASPECT Evaluation toolkit

The evaluation adopted from UK's NHS evaluation toolkits namely AEDET Evolution and ASPECT Evaluation toolkit (DS Estates and Facilities, 2008a &b). The previous study using the same evaluation and had explained in detailed in previous conferences as was published in the proceedings. Hence, only the summaries to described the research in this paper. The AEDET (Achieving Excellence Design Evaluation Toolkit) Evolution was used to evaluate the physical environment of the paediatric wards.

There are three main areas consists of Impact, Build Quality and Functionality. The researcher filled up the form based on their personal on-site observation during their visit, while photographs were taken and documented to visualize the ambience of the paediatric settings. The using of weightage for the best score is 6 to express a level of virtually complete agreement while the poorest score is 1 used to express a level of virtually no agreement. The ASPECT (A Staff and Patient Environment Calibration Toolkit) was modified into survey questionnaires to evaluate users' satisfaction level. The survey questionnaires distributed to 160 respondents involved users of the paediatric wards, which included –patients / carers, nurses and other staffs. Overall, 80 patients and 80 nurses involved as tabulated in Table 1. The same weightage for the best score is 6 to express a level of virtually complete agreement while the poorest score is 1 used to express a level of virtually no agreement. In-patients data acquired from the hospitals' record departments based on data for the year 2009. The data used as the basis for analysis and consisted information about the patients' demography, LOS and type of sickness (diagnosis).

3.3. Limitations and delimitations

The present study having limitation especially on getting approval from the Ministry of Health (MOH) and the National Medical Research Institute (NMRI). Confidentiality of in-patients data obtained were delayed which had to be screened by the administrative officer before being released. While, some of the questionnaire responses returned were incompleted, and limited samples as the setting located in just the Klang Valley might not be true representation of the nation's situation. Delimitations for the study involved paediatric patients of ages between 3-6 years old and delimited to 28 bedded paediatric wards in relation to current practice.

4. Findings and discussion

The aim of this paper to evaluate the healing environment created in newer paediatric wards that built in year 2005, 2006 and 2007, as per best practices suggested by research findings very much earlier.

4.1. In-patient data analysis

The in-patient data shown that majority of male patient at the age 3 years old mostly warded. It seemed patient will discharge from the ward within 1-5 days once the patient recovered from their illness. Mostly the Malays were the majority who stayed in the ward. While diagnosis distribution highly related to Asthmatic, Bronchopneumonia, Tonsillitis, Allergic Asthma, Respiratory Infection and Pneumonia. Second highly diagnosis distribution related to Diarrhea and Gastroenteritis, Dengue Fever and other Convulsions. Thirdly diagnosis distribution (type of sickness) related to fractured, superficial injuries and wound concussion as shown n Figure 3.

4.2. The AEDET (Achieving Excellence Design Evaluation Toolkit) Evolution

The AEDET analysis done by researcher during their site visit . The analysis based on researcher observation and filling up the AEDET form. The analysis reviewed that all hospital score Average and shown positive improvement. For examples all hospitals score Average for Character & Innovation, Use, Access, Space and Urban & Social Integration for SB(NU)-07. The rest score Above Average for especially for the Form & Materials, Staff & Patient Environment as shown in Figure 4. It seemed that designers aware on new design and using update materials to enhance the characters of the space as well as the building, however lacking in terms of engaged the space and consideration on accessibility.

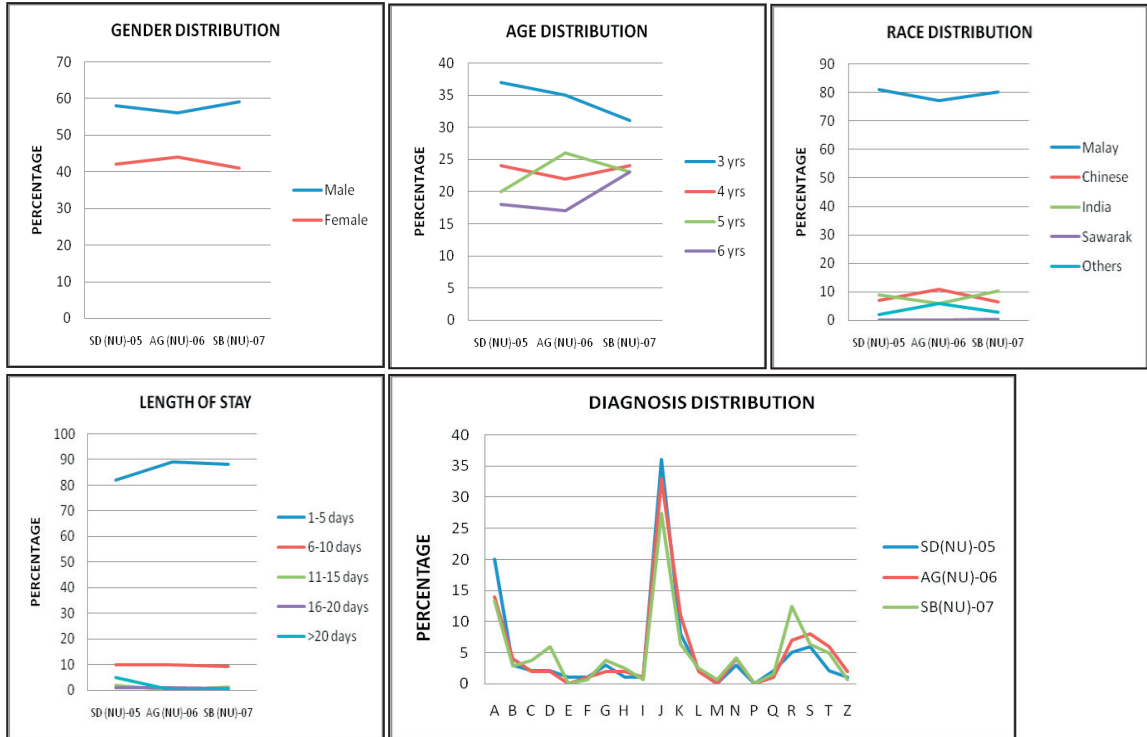


Fig. 3. In-patient data in 2009

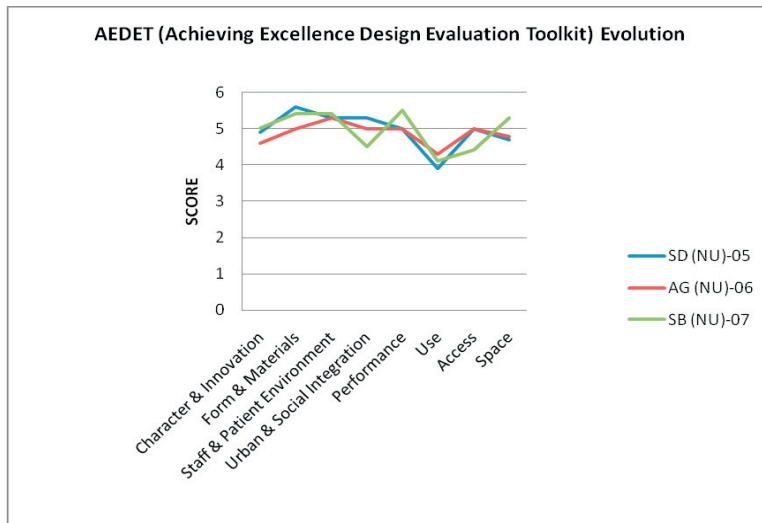


Fig. 4. The AEDET analysis

4.3. The ASPECT (A Staff and Patient Environment Calibration Toolkit)

The ASPECT analysis done to evaluate the users satisfaction level. The questionnaires distributed to 80 staffs and 80 patients/carers. It seemed that all hospitals score Average for both staff and patients satisfactory level as shown in Figure 5 and Figure 6. Thus, shows that designers did not aware of users requirement and fulfill user satisfaction. Perhaps designer should consider the detail of guideline as mentioned in the literature review before they start any hospital project and design process.

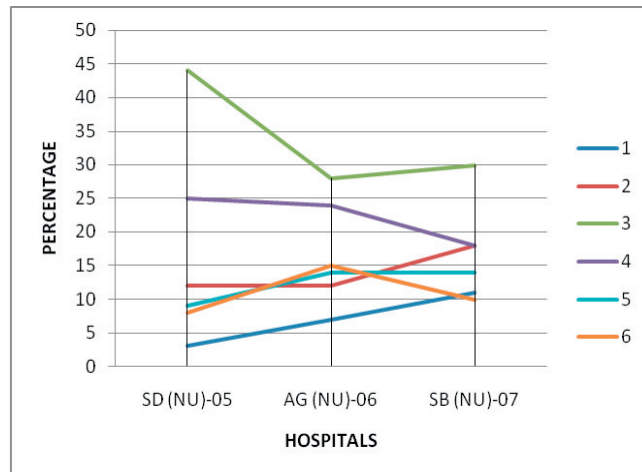


Fig. 5. The ASPECT analysis - Collapse data for staff satisfaction scoring

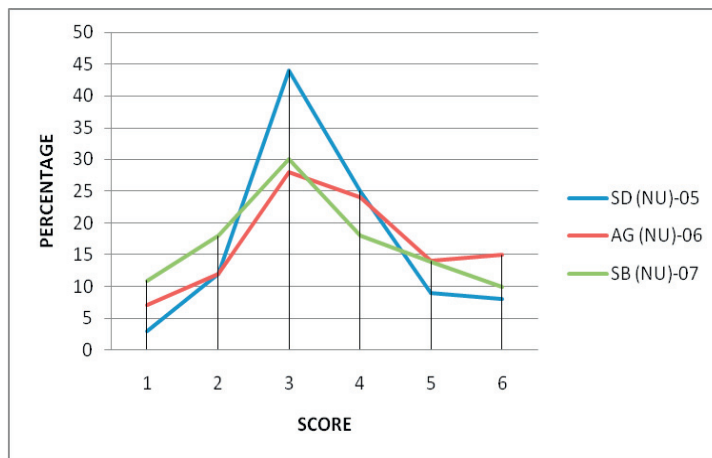


Fig. 6. The ASPECT analysis - Collapse data for patient satisfaction scoring

4.4. Observation and photograph documentation

This section are the series of photograph taken during researcher site visit. The purpose is to observed the trend of newer hospital focuses at selected area, such as nurse station, the wards, playroom, main

entrance, corridor & restroom. Overall, the outcome of the AEDET analysis reflected the physical setting as shown in Figure 7, Figure 8, Figure 9 and Figure 10.

The used of new materials, update design and taking consideration of user needs creates better environment and new ambience in the hospital.. For examples, designer creates nurse station with lower table and become user-friendly especially to paediatric as shown in Figure 7. In relation to the wards, all hospitals offer a better environment with suitable bed for paediatric patients, as well as a comfort sofa for parents who stayed overnight accompany their child. Natural lighting gives positive impact to illness child and benefited in healing process. Each bed had their own privacy space to change their cloth as shown in Figure 8.

Colours play an important role where it creates cheerful ambience of the paediatric wards. Cartoons, under water themes or jungle themes creates the environment more colourful and its helps children to ease their anxiety and trauma. Figure 9 shows the corridor in the paediatric wards. Each wards has their own theme and different approach to invites children. A small room with different approach such as colourful mural on the wall creates the room more lively, cheerfull and pleasant to children benefited to them by soothing their anxiety and trauma. Toys and books helps the playroom more attractive and useful to children as shown in Figure 10.



Fig. 7. Nurse Station with user-friendly concept



Fig. 8. Paediatric wards with natural lighting



Fig. 9. Colourful corridor creates cheerful ambience



Fig. 10. Playroom with attractive approach

5. Conclusion and recommendations

The outcome between the AEDET and ASPECT analysis shows the different opinion from researcher and feedback from respondents about the physical environment and satisfaction by the users. Researcher analysed the AEDET data and suggest designers to improve on Character & Innovation, Use and Access. Meanwhile, the ASPECT data shows respondents' needs extra attention regarding: (1) Patients needs privacy. (2) Viewing outside and around the building. (3) The need for patients dealing with the natural, nature and outdoor world. (4) Patients needs comfort and they want control those level. (5) Understandable healthcare buildings by the staff, patients and visitors who use them. (6) Interior appearance of healthcare buildings, and; (7) Facilities for the users in the healthcare buildings.

The overall data analysed both the AEDET and ASPECT indicated improvement, however those elements mentioned above did not achieved Above Average. Perhaps new building should score more and shows impressive improvement to support the healing environment and benefited for all. Therefore, researcher revealed that the best practices suggested by earlier studies were not fully implemented in the newer wards involved. Hence, the common belief that positive recommendations from research findings were not implemented into practice was verified. Major obstacles for the implementation were identified. To overcome the obstacles, it is suggested that related professional bodies, Local Authorities,

building providers, etc. should be made aware of their obligations for a better quality of life for users in paediatric wards.

Special note

This paper was developed further from the paper published by the same authors in *Natural Environment in Paediatric Wards: Status and Implications*, *Procedia - Social and Behavioral Sciences*, 68, 2012, 173–182. *Newly Built Public Paediatric Wards Increase Length of Stay (LOS)*, *Procedia - Social and Behavioral Sciences*, 50, 2012, 623–632. *Quality Physical Environment in Paediatric Wards: Designer's Creation Versus Users' Satisfaction*, *Procedia - Social and Behavioral Sciences*, 35, 2012, 221-229, Elsevier, available online 9 April 2012. *Assessment of Healing Environment in Paediatric Wards*, *Procedia - Social and Behavioral Sciences*, 38, 2012, 149-159, Elsevier, available online 19 April 2012. *Physical Environment: The Major Determinant Towards the Creation of a Healing Environment?*, *Procedia - Social and Behavioral Sciences*, 30, 2011, 1951-1958, Elsevier, available online 27 December 2011. Healing environment of pediatric wards, *Procedia - Social and Behavioral Sciences*, 5, 2010, 948-957, Elsevier, available online 21 September 2010. Earlier findings were revealed in the Proceedings of AicE-Bs 2010, Grand Margherita Hotel, Kuching, Malaysia, 7-9 December 2010, the Proceedings of AcE-Bs 2010, Riverside Majestic Hotel, Kuching, Malaysia, 7-8 July 2010, while the pilot study in the Proceedings of InCEBS 2009, Shah Alam, Malaysia, 14-15 November 2009.

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