

## IMPACT OF BUILT FORMS IN UPLIFTING THE MENTAL HEALTH OF PEDIATRIC CANCER PATIENTS

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### Introduction

With non-communicable diseases on the rise, data from the World Health Organization (2018) reveals that more than 14 million people around the world suffer from the threat of cancer, with nearly 8 million patients experiencing death. The effects of cancer and its related treatment techniques greatly impact on a patient's mental and emotional wellbeing in addition to its physical impact. Although early detection, care and effective healthcare facilities can lead to recovery, the nature of the sterile and isolated nature of such modern facilities often lack the warmth and human feeling that many patients require for better emotional wellbeing, due to the utilitarian and efficient nature of cancer centres and hospitals. The concept of creating 'healing spaces' using architecture aims to address such challenges by creating and designing medical institutions that are more comfortable for the patient, taking a step away from the uncomfortable and sterile feel of modern-day healthcare facilities that could create an additional stress to the patient's psyche. This publication will address the noticeable lack of up-to-date, systematically reviewed research, specifically focusing on the existing literature on paediatric cancer patients and the impact on their healing factors caused by architectural design, and as a result, assists in presenting a clearer understanding of the connection between architecture and its impact on the healing process in human psychology.

### Methodology

This research was conducted by focusing solely on child-cancer patients and surveying existing literature on the subject. Researches, journal articles and publications on healing architecture, cancer treatments, cancer healthcare centres and paediatric hospital environments were considered in this process. Out of the 30 studies selected for this process, 9 were systematic literature reviews previously published on the subject, considering literature between the period of 1997 to 2021.

All the collected data were subjected to content analysis and subsequently a discussion. Utilizing the PICO (Population, Intervention, Comparison and Outcomes) framework, the said studies were sources from three databases; Scopus, Web of Science and Google Scholar using multiple search methods, including 'snowballing searches,' utilizing many search filters to identify keywords such as paediatric, cancer care, and healing architecture among others to discover the above researches. Only articles and papers written in English were considered for this research.

## Results and Discussion

The literature analysed revealed many factors that affected the senses and experiences of paediatric patients, especially those suffering from cancer. Common design elements and themes utilized to evoke healing and human warmth were identified in the process and synthesized. Healing concepts identified by researchers included the likes of employing positive distractions, colours, healing gardens and aromatherapy to evoke a positive and healing response from paediatric patients with effective results. Employed design strategies include the intelligent use of building orientation and room configuration to create a soothing and natural ambient environment. Factors such as lighting, temperature, ventilation, smell, and natural lighting also had a powerful effect. This research additionally discovered the correlation of these elements and their impact on psychological and social aspects of paediatric patients. This includes their sense of control, feeling of belongingness, personal space, safety and security, space for visiting family and recreational activity, all which considered and implemented in architectural design and have evoked a positive response in the healing of patients.

## Conclusion

In conclusion, this research identifies that research conducted in the past have clearly identified a correlation between the mental, spiritual and emotional wellbeing of paediatric patients, cancer patients particularly and the use of human design elements in architectural design.

## References

- Beggs, J.L. (2015). *Healing through Architecture*. [Thesis] Available at: <https://uwspace.uwaterloo.ca/handle/10012/9591>.
- Bolen, A. (2012). *A Place for Healing: Architecture as Intermediary Between Nature and the Healing Child*. [MSc Architecture Thesis] pp.1–4.
- Cankurtaran, I. (2020). *Fundamentals of cancer treatment service design considering the healing environment concept: a guideline proposal for turkey*. [Thesis for Degree of Doctor of Philosophy in Building Science in Architecture] pp.1–5.
- Commercial Interior Design. (2021). *Children’s hospitals: Designs that lift the spirit*. [online] Available at: <https://www.commercialinteriordesign.com/news/childrens-hospitals-designs-thatlift-the-spirit> [Accessed 5 Jul. 2022].
- Dotdash (n.d.). *Queensland Children’s Hospital formerly Lady Cilento Children’s Hospital. 2014 - Dot Dash*. [online] dotdash.com.au. Available at: <http://dotdash.com.au/projects/lady-cilentochildrens-hospital> [Accessed 5 Jul. 2022].
- Fricke, O., Halswick, D., Längler, A. and Martin, D. (2019). Healing Architecture for Sick Kids Concepts of Environmental and Architectural Factors in Child and Adolescent Psychiatry. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*, [online] 47(1), pp.27–33. doi:[10.1024/1422-4917/a000635](https://doi.org/10.1024/1422-4917/a000635).

- Ibrahim Momtaz, R. and Shaban, R. (2018). The impact of healing gardens on improving psychological recovery of children –application on pediatric cancer hospital in egypt. *JES. Journal of Engineering Sciences*, [online] 46(3), pp.333–345. doi:[10.21608/jesaun.2018.114651](https://doi.org/10.21608/jesaun.2018.114651).
- Ibrahim, T.G., Gabr, H.S., Khodeir, L.M. and Aboubakr, D.A. (2020). Synergetic approach for biophilic healing interior design for paediatric cancer. *Journal of engineering and applied science*, [online] 67(6), pp.1435–1453. Available at: <https://www.academia.edu/45044378/>
- Jayamanna, H.P.C. (2018). *Healing & Architecture: A Study on selected meditation centers in Sri Lanka*. Dissertation.
- Lim-Regala, c. (2018). *Design Better Extended: CRL Interior Designs proposes to revive the wonder at PCMC*. [online] Blue Print. Available at: <https://bluprint.onemega.com/crl-interiordesigns-pcmc/> [Accessed 5 Jul. 2022].
- Lomholt, I. (2020). *Children’s Hospital Lausanne University Hospital*. [online] e-architect. Available at: <https://www.e-architect.com/switzerland/childrens-hospital-lausanne-universityhospital> [Accessed 5 Jul. 2022].
- Marcus, C.C. (2007). Essay: Gardens—places for nature in health care. *Interdisciplinary Design and Research e-Journal*, 1(1).
- Marcus, J. (2012). Psychosocial Issues in Pediatric Oncology. *The Ochsner Journal*, [online] 12, pp.211–215. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3448242/>.
- Nbbj (n.d.). *Massachusetts General Hospital, Lunder Building | NBBJ*. [online] [www.nbbj.com](http://www.nbbj.com). Available at: <https://www.nbbj.com/work/massachusetts-general-hospital-lunder-building> [Accessed 5 Jul. 2022].
- Paraskevopoulou, A.T. and Kamperi, E. (2018). Design of hospital healing gardens linked to pre- or post-occupancy research findings. *Frontiers of Architectural Research*, [online] 7(3), pp.395– 414. doi:[10.1016/j.foar.2018.05.004](https://doi.org/10.1016/j.foar.2018.05.004).
- Rajanayake, R.N.D.M. (2019). *Built Environment for Palliative Care: Field study of Palliative Care wards in Sri Lanka*. Dissertation.
- Samimi, K.S. (n.d.). *Children’s cancer and transplant hospital: a micro town within a bubble*. [MSc Architecture Thesis] Available at: <https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1982&context=theses> [Accessed 8 Jun. 2022].
- Vollmer, T.C. and Koppen, G. (2021). The Parent-Child Patient Unit (PCPU): Evidence-Based Patient Room Design and Parental Distress in Pediatric Cancer Centers. *International journal of environmental research and public health*, [online] 18(19). doi:[10.3390/ijerph18199993](https://doi.org/10.3390/ijerph18199993).
- Zam, S. (2014). *Cancer Healthcare*. [MSc Architecture Thesis] pp.1–3. Available at: <https://repository.au.edu/items/145c4fd9-351e-40e5-8201-b38a4394259e> [Accessed 8 Jun. 2022].