



THEMATIC REVIEW ON ISLAMIC DESIGN QUALITY IN HOSPITAL DESIGN IN MALAYSIA

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Abstract:

As a multi-racial country with Islam as the official religion, Islamic qualities should be considered in the design of hospitals to promote Islamic awareness, enhance self-esteem, strengthen commitment to Islam and ultimately gain Allah's mercy and forgiveness. Implementation of these Islamic qualities in the designs of hospitals will enhance the healing process. Articles discussing design criteria for hospitals or Islamic quality were found, however, there are no reviews regarding the implementation of Islamic qualities in hospital design in Malaysia. The purpose of this research is to review the literature on implementation of Islamic qualities when designing hospitals in Malaysia. A list of keywords related to the issue has been identified to sieve through the total of 145 peer reviewed journal articles from Scopus, Web of Science and Mendeley databases. Eventually, by filtering using inclusion and exclusion criteria, a total of 27 articles were selected to be reviewed in this article. A thematic review of these 27 articles was performed using ATLAS.ti tools. This analysis has identified 29 initial codes related to hospital design and Islamic qualities which are then grouped into 6 clusters: environmental design, hospital environment, space planning and design, therapeutic design, Islamic values, and Islamic Concept Hospital. The results highlight the importance of future research which hopefully will influence the Malaysian administrators and designers to develop a better hospital environment with the implementation of Islamic qualities for the benefit of all Malaysians.

Keywords:

Hospital Design, Healthcare Architecture, Islamic Built Environment, Islamic Quality

Introduction

Malaysia is a multi-racial country with Islam as the official religion and Muslim making up the majority of the population (63.7%). The implementation of Islamic design qualities in hospitals are relevant to promote Islamic awareness, enhance self-esteem, and gain Allah's mercy and forgiveness and at the same time enhance healing process. Islamic qualities promote mercy to all mankind regardless of religion or race hence these are perfect for the Malaysian community. Islam is inclusive to all on earth, a nature that is holistically compatible to all living creatures. Islamic design qualities are not only superficial, but the values fulfill physical needs, religious needs and spiritual aspects.

Every hospital is built, developed, and operated with its own ideology, mission, and visions. In Malaysia, Islamic concept hospital is one of the most famous concepts nowadays and has become the popular choice for people who are looking for healthcare services within an Islamic environment. An Islamic Concept Hospital (ICH) is where the healthcare services provided in the hospital are in accordance with Islamic teachings or Shariah principles. In addition to that, the whole institution should implement Islamic teachings and concept including the facilities and architectural design (Kasule, 2011).

One of the issues raised is that some of the hospital designs have no consideration of Islamic qualities especially if the buildings were renovated from shop units. Therefore, the aim of this paper is to understand the issues that are discussed in the hospital design and Islamic Built Environment publications from the year 2002-2020 with the following research question:

What are the discussions on Islamic design quality in hospital design in Malaysia?

Materials and Methods

Thematic review using ATLAS.ti 9 was initially introduced by Zairul (2020). The same technique has been implemented to this study to provide a thorough literature review. Clarke & Braun (2013) define thematic analysis as a process of identifying patterns and construct themes after thorough reading on a particular subject. This method allows the identification of patterns to construct categories to understand the discussion on Islamic quality in hospital design. The focus of this research is to analyse and interpret the findings to provide recommendations for future research in Islamic healthcare design.

The literatures were chosen based on several selection criteria: 1) Publication from the year 2000-2020, 2) Have at least the keyword(s) of Hospital design or Healthcare Architecture or Islamic Quality or Islamic Built Environment, 3) Focusing on Islamic design quality in Hospital in Malaysia.

The literature search was performed on Scopus, Web of Science, and Mendeley search. Figure 1 shows the initial search outcome with 62 articles from (SCOPUS), 71 (Web of Science), and 35 (Mendeley) articles. However, 131 articles were removed due to their premature results and anecdotes or were not discussing hospital design or Islamic design quality. Some of the articles were also found to be incomplete. Others are not accessible, have a broken link and overlapped, and have incomplete metadata. Eventually, 27 relevant articles were chosen to be reviewed for this study (Table 1).

Table 1: Search strings from Scopus, Web of Science, and Mendeley

Database	Keywords searching	Result
Scopus	(ALL (“Islamic built environment” OR “healthcare architecture”) AND ALL (“hospital design”))	110 results
	(ALL (“Islamic values” AND “hospital”) OR TITLE-ABS-KEY-AUTH (“Islamic hospital design”))	89 results
	(ALL (“Islamic built environment” OR “healthcare architecture”) AND TITLE-ABS-KEY (“hospital design”))	62 results
Web of Science	TOPIC: (“healthcare architecture”) Timespan: 2010-2021	71 results
Mendeley	Islamic quality in hospital Malaysia	49 results
	Islamic concept hospital Malaysia	35 results

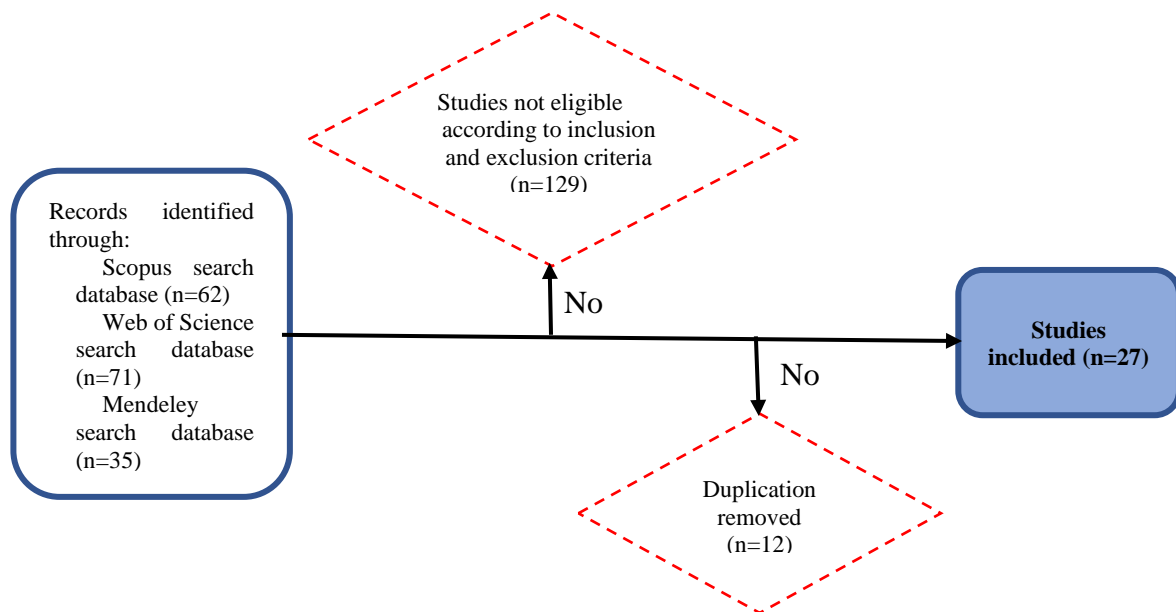


Figure 1: Inclusion and Exclusion Criteria in the Thematic Review

The chosen articles were then uploaded to the ATLAS.ti 9 software as primary documents, and then each paper was grouped according to 1) author; 2) issue number; 3) periodical, 4) publisher, 5) volume, and 6) year of publication. In doing so, the articles can be analysed according to the year they were published and the pattern of discussion according to the year. The total number of articles finalised into the final documents in ATLAS.ti 9 is 27 documents.

Main Results

Implementing Islamic design qualities into hospital design in Malaysia is not straight forward. This is mainly due to its multi-racial communities, making it more challenging compared to the implementation in other Islamic countries. The built environment in hospitals must implement Islamic design qualities so that they can be considered as Islamic Built Environment (IBE). This is to ensure that these hospitals are safe for consumers and at the same time applying Islamic design quality.

IBE is a situation or setting that encompasses the combination of created elements (spaces, places, and structures) with the implementation of Islamic ideology to serve human needs and values. The concept considers the suitability of people's lifestyles (both Muslim and non-Muslim) by symbolizing both the spiritual and physical essences of Islam (Mohd Isa, 2015).

As underlined in the IBE frameworks, Islamic design qualities should not only be presented by the external aesthetic values, but more importantly they should be identified within the aspect of (i) tolerance, (ii) human comfort, (iii) cleanliness, (iv) intelligibility and user-friendly, (v) natural environment and (vi) safety and well-being. This thematic review will focus on identifying related articles that discuss these elements in hospital design in Malaysia. This particular issue forms the basis of this research. The main endpoint is to search for the fundamental "Islamic design qualities" for which hospital design in Malaysia should be based on. Ultimately this will provide a guideline for healthcare authorities to produce better facilities with consideration of Islamic design qualities in the future.

The main result of the thematic review is shown in Figure 2. The ATLAS.ti 9 software analysed 29 initial codes related to hospital design and Islamic quality. These codes were grouped into 6 main themes, 1) environmental design, 2) hospital environment, 3) space planning and design, 4) Therapeutic design 5) Islamic values, and 6) Islamic Concept Hospital.

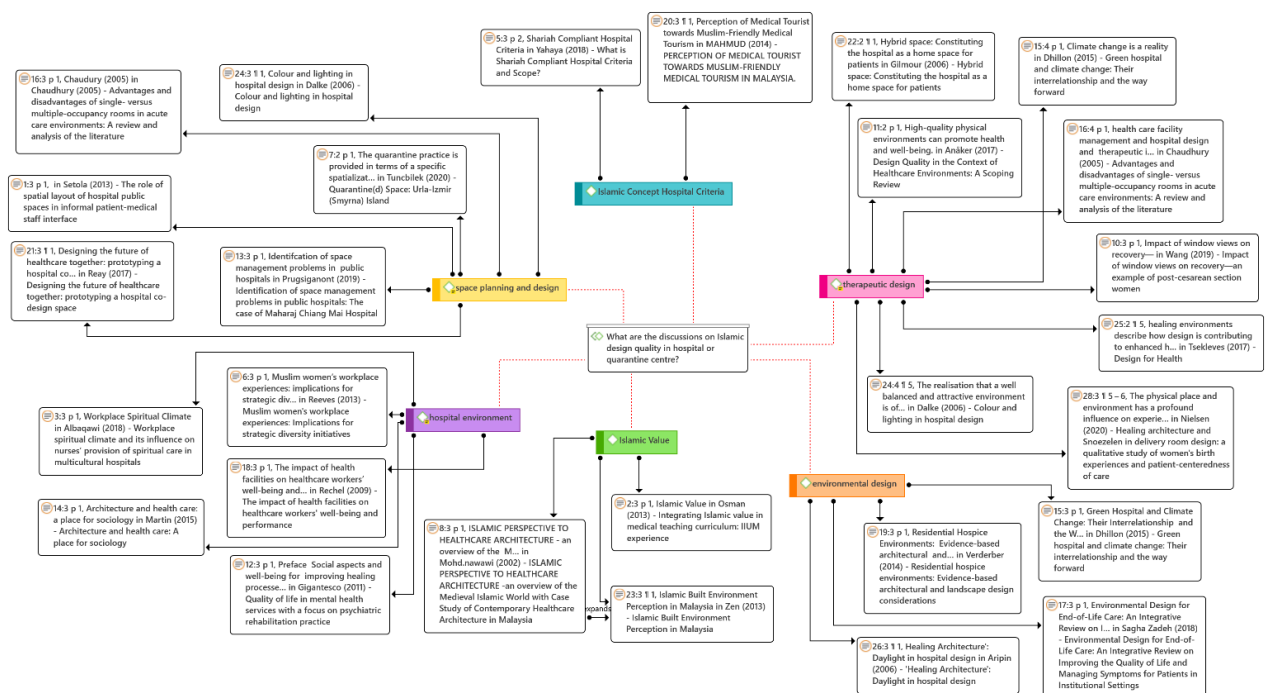


Figure 2: Overall Network with 6 Main Themes Analysed by Atlas.ti 9

Four of the articles reviewed have discussed the environmental design issues in the hospitals. The discussion covers landscape design, daylight, green hospital design, climate change, and environmental design for end-of-life care. Five articles focused on hospital environment themes which discussed workplace spiritual climate, workplace experience, the impact of health facilities, sociology, and social aspects and wellbeing.

The third theme, space planning and design were found in six articles. The discussion covers single vs multiple wards, space management, public spaces, colour and lighting, hospital design space, and quarantined space. Therapeutic design is the fourth theme that was the focus in eight articles. The previous studies on this theme include hybrid spaces, physical environment, healing environment, window and views, and therapeutic design.

The next theme of interest is discussed in three articles which is Islamic values. This covers on Islamic Built Environment and Islamic Perspective to Healthcare Architecture. The last theme is Islamic Concept Hospital which was only found in 2 articles and focusing on the criteria and scope of Islamic Concept Hospital and Muslim-Friendly medical tourism.

These 6 main themes extracted from the 27 papers by different authors showed that there are few studies on hospital design, but there is a lack of focus on Islamic design qualities, and no study that particularly discuss the implementation of Islamic design qualities in hospitals.

Theme 1: Environmental Design

There are four reviewed articles that discuss on the first theme of environmental design in the hospitals as shown in Figure 3. Environmental design is part of Islamic design quality because the planning doctrine in Islam is the relationship between man and Creator, man and man, and man and environment. Therefore, the nature element must be part of Islamic design qualities. However, only one article was found to elaborate on environmental design for hospital in Malaysia.

Environmental design is the process of integrating the environmental elements in the buildings or plans to create a space that will enhance the natural, social, and physical environment. Environmental design includes natural lighting element, sustainable technology, the materials selection, and landscape element.

According to Aripin (2006), in order to achieve sustainable hospital design that creates healing environment, appropriate physical aspects (i.e. daylighting) seem relevant and in tandem with sustainability. Many previous studies suggested that adequate and appropriate exposure to natural light provides a positive impact on human health and wellbeing of patients and medical staff in hospitals. Aripin (2009), highlighted the role of daylighting design as one of the physical aspects in hospital design that creates a healing environment.

Verderber (2014) stated that architectural and landscape designs are important consideration when designing hospice to create a more intelligent hospice care and support. Hospices that are planned, maintained, and managed well can help to counter the inadequacies in a society that so often isolates patients from their families during their time of greatest need.

The study by Verderber was expanded by Zadeh, S.(2018), in environmental design for end-of-life care which improves the quality of life and managing the symptoms for patients. The design can support or detract from the physical, psychological, social, and spiritual needs of patients, their families, and their caretakers.

The fourth reviewed article, by Dhillon (2015), discussed “Green Hospital” particularly identifying the ways that healthcare building contributes to climate change. Hospitals, being resource intensive establishments, consume vast amounts of electricity, water, food, and construction materials to provide high quality care. Therefore, employing simple, smart, and sustainable technology can greatly reduce their environmental footprint.

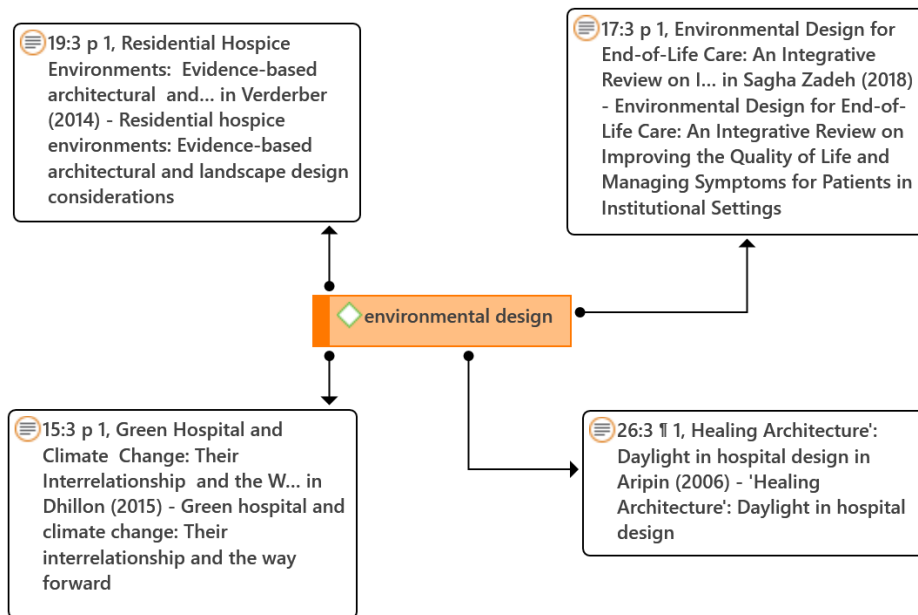


Figure 3: Theme 1 – Environmental Design

Theme 2: Hospital Environment

Figure 4 represents all articles related to the hospital environment that have been reviewed. No related articles from the three main databases in this study is focused on the Malaysian context. However, the concept and idea are suitable to be implemented in Malaysia. The first article by Rachel (2009) mentioned that hospital facilities can impact on healthcare workers’ performance and well-being. A healthy and safe working environment leads to an efficient performance by staff to deliver the service.

The study by Rachel has been expanded by Reeves (2013) and Albaqawi (2018) where both articles discussed workplace climate that could influence the experience of patients who are receiving treatment and performance of staff. Safety, comfort, and efficiency are part of Islamic design quality that needs to be considered in hospital design. Meanwhile, a study by Gigantesco (2011) shows that a better hospital environment is important in the healing process of mental health and rehabilitation.

The last reviewed article in this theme by Martin (2015) discussed the importance of social place in healthcare facilities like shopping malls. The author believes that adequate sociology of healthcare architecture necessitates an appreciation of both the construction and experience

of buildings, exploring the briefs and plans of their designers, and observing their everyday uses. Combining approaches and methods from the sociology of health and illness and science and technology can take healthcare building to substance focus. This idea will encourage the hospital users to enjoy a better environment and at the same time improve the healing process.

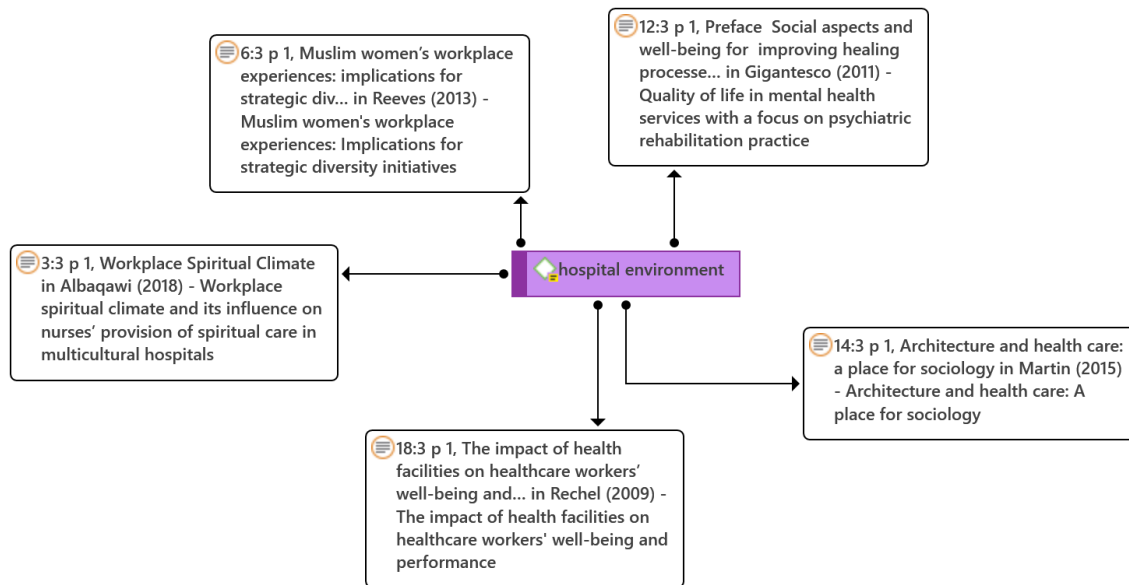


Figure 4: Theme 2 – Hospital Environment

Theme 3: Space Planning and Design

Figure 5, showing the aspect of space planning and design, is the third theme in implementing Islamic quality design in hospitals. Islamic qualities in space planning include privacy, intelligibility, and human comfort issues in hospital spaces either public or private. Therefore, the reviewed articles are relevant for hospital design in Malaysia even though the studies are not in Malaysia.

Chaudhury (2005) has discussed the advantages and disadvantages of single versus multiple ward rooms in acute care which gave an impact on cost, infection control, therapeutic, and management of the hospital. Dalke (2006) did a study on hospital colour and lighting to enhance the hospital environment. The contrast colours also benefit all users as it assists those who are visually impaired.

The next reviewed article is by Setola (2013) who elaborates on public spaces design in hospitals. Public spaces of the hospital are important to connect between the hospital and the city. The spatial configuration of the public spaces within the hospital especially integration core influences relationships and interfaces between different categories of people. This is highlighted by Setola as a key element to achieve better relations quality and enjoyment of the right of health.

Reay (2017) mentioned in the article that the development of the space reflects the design principles it espouses, and it embeds design principles and practices into healthcare design. While Prugsiganont (2019) highlighted the main problems in Thailand hospitals whereby there

is a dramatically high number of patients in public hospitals, poor accessibility, a low level of spatial flexibility, and poor spatial orientation that related to a lack of appropriate strategic space planning and lack of integration of the Thai culture into hospital design processes.

The latest study by Tuncbilek (2020) highlighted the latest COVID-19 issues that reflected on quarantine spaces or infection disease spaces with the special requirement by the World Health Organization (WHO) that need to be fulfilled by designers in order to prevent the transmission of the virus to other people.

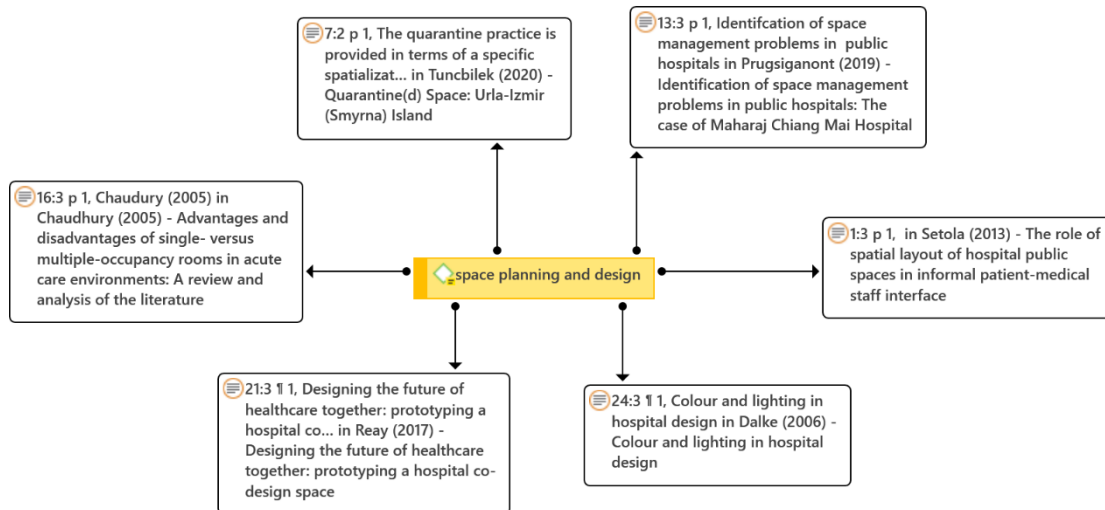


Figure 5: Theme 3 – Space Planning and Design

Theme 4: Therapeutic Design

Figure 6 represents the therapeutic design which is the most frequently discuss theme by scholars in healthcare design where eight reviewed articles elaborate on this issue. A study by Dalke (2006) also highlighted that colours and lighting are part of the therapeutic design that encourages the healing process. Gilmour (2006) stated constituting a hospital as a home space for patients really contributes to the healing process because adapting the home environment to the hospital gives better mood and comfort for patients.

Chaudhury (2007) discussed single and multiple ward romos as part of the therapeutic design which promotes more privacy, easy to manage, and comfort for a single room. Green hospital studies by Dhillon (2015) also show that implementation of smart and sustainable technology and materials will affect the environment of the hospital building and at the same time give therapeutic elements in the hospital building.

Another article by Anaker (2017) highlighted those high-quality physical environments can promote health and well-being. Awareness of what is considered design quality in relation to healthcare architecture could help the healthcare environments to fulfill the needs of hospital users in these three main elements, (i) environmental sustainability and ecological values, (ii) social and cultural interactions and values, and (iii) resilience of the engineering and building construction.

Tseklevs (2017) also supports the study by Anaker (2017) by mentioning that certain designs can contribute to enhanced health and wellbeing and how recent developments are helping to create better designs. The study focuses on the relationship between people, environment, and healing in three aspects which are how people perceive the environment, social interaction as part of healing, and the influence of people's sociocultural background.

Meanwhile, Wang (2019) stated that view of landscapes from hospital room windows could impact the recovery process for post-cesarean section women. The results show that the view help reduces overall pain scores and increase enjoyment and good mood. Therefore, the designers should maximize the benefit and well-being of patients recovering from surgery by designing patient rooms to create maximum satisfaction with visual impacts and optimize window views. This also helps decrease the use of pain medication and substantially reduce healthcare costs.

The latest study by Nielsen (2020) also for the obstetric ward mentioned that physical place and environment have a profound influence on the experiences, health, and wellbeing of birthing women. The building and interior design affect the senses, including users' pain experience and stress levels. Nielsen highlighted that the environment should be well adapted to the women's needs, offered stress- and anxiety-reducing surrounding, and at the same time help them obtain physical comfort. The ward environment should also signal respect for the family's needs as it supports physical and emotional interaction between women and their companions and helped relieve their concern for the partner's well-being.

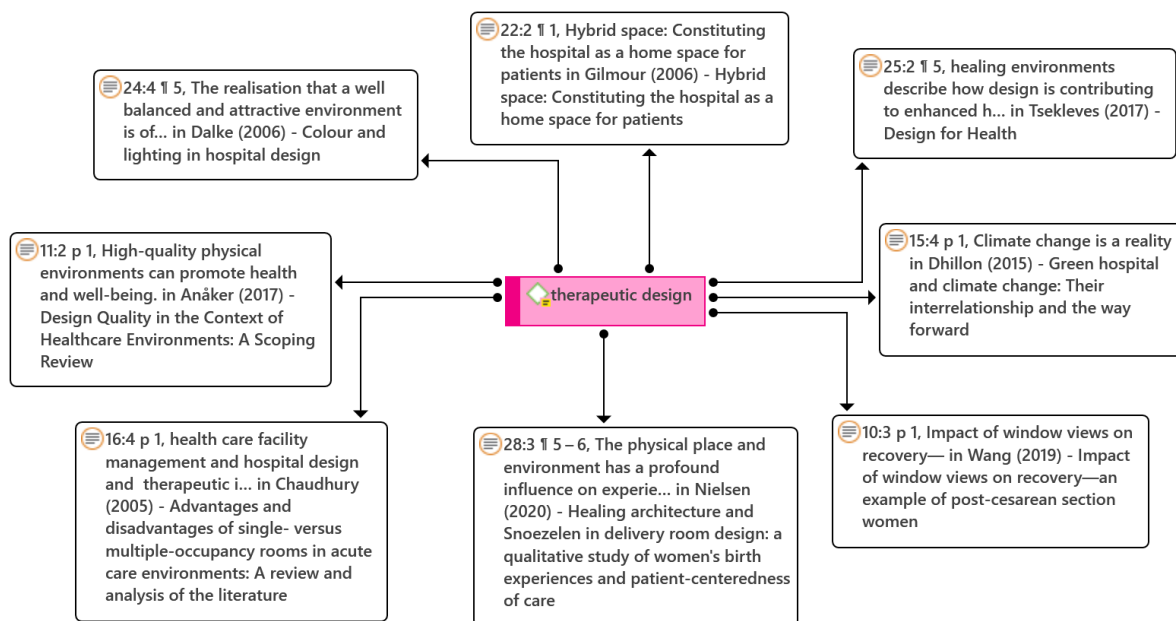


Figure 6: Theme 4 – Therapeutic Design

Theme 5: Islamic Values

There are three reviewed articles that discuss the Islamic values theme as shown in Figure 7. However, only one article which was published nearly two decades ago by Mohd Nawawi, N. (2002) discussed on Islamic perspective towards healthcare architecture in Malaysia. There is no recent study related to Islamic values in healthcare architecture. According to Mohd Nawawi, N. the healthcare architecture of today, although fully equipped with the facilities for

spiritual performance (prayer rooms), fulfilled the basic requirement of separation according to gender and of corporate image in its design, it still lacks the original spirit of the benevolence of the place for which the typology of buildings was able to portray in the medieval era. The author has highlighted issues that need to be considered towards attaining the lost Islamic values in hospital design in Malaysia such as building layout design, facilities, user friendly, privacy, and mortuary.

Another article by Zen, I (2013) highlights the issues of IBE in Malaysia as the government of Malaysia strives to adopt Islamic values in its regulation of Malaysia's built environment. Implementation of Islamic values in Malaysia as a multi-racial and multi-religious country is more complicated particularly on the role of an Islamic-based built environment and if the Islamic values are implemented appropriately. However, this article discussed IBE in a city context and not specifically for healthcare design.

The article by Osman, A. (2013) is a study on integrating Islamic values in the International Islamic University Malaysia (IIUM) medical teaching curriculum. According to Osman, it is the fundamental duty of doctors to ensure that they have the necessary expertise as described by the profession, observing good ethical behaviour, good communication skills, and exhibiting compassion in carrying out their professional duties. These are the characteristics of a safe doctor where most patients would feel safe and comfortable to receive their care. Safety and security are part of Islamic values that need to be considered by designers in providing proper spaces for staff to deliver the services and patients to receive treatment.

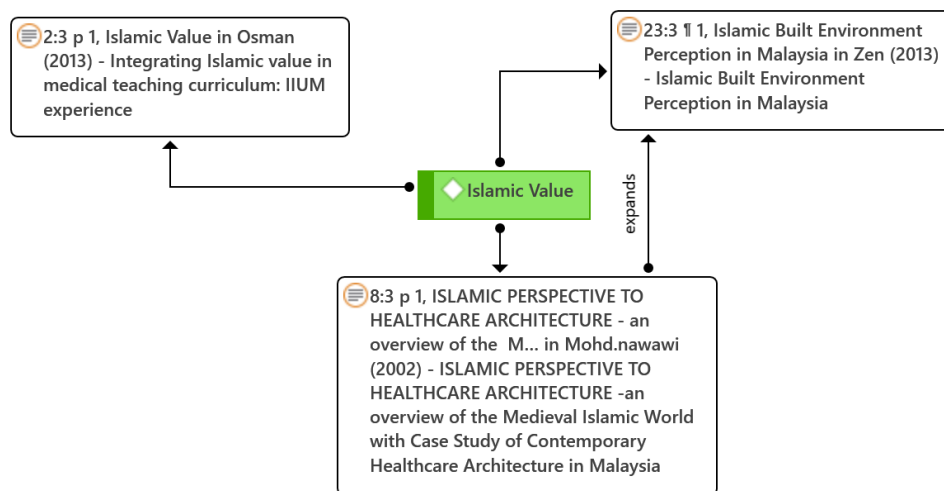


Figure 7: Theme 5 – Islamic Values

Theme 6: Islamic Concept Hospital Criteria

The last theme in this thematic review is Islamic concept hospital criteria as shown in Figure 8. Only two articles elaborated on this issue. The first author, Mahmud (2014) discussed the perspective of medical tourists towards Muslim-friendly medical tourism. Malaysia as a hub of halal Muslim products could attract people around the world who are looking for Islamic concepts in healthcare providers. The idea of Shariah Compliant hospital concept and Ibadah friendly hospital concept have been introduced either by government or private hospitals in Malaysia. However, the study only focused on the “soft-halal” services and factors that influence tourists who chose Islamic healthcare services as their preference.

Meanwhile, the second reviewed article by Yahaya, R. (2018) expands the study from the first article by Mahmud (2014) by focusing on Shariah Compliant Hospital criteria and scope from four aspects which are people, structure, work process, and technology from the management view.

Yahaya (2008) highlighted that all four aspects should comply with Shariah requirements which will be advised by a Shariah Advisor or Shariah Compliance Officer. The standards are developed based on Shariah principles to meet the customers' needs and satisfaction. This standard will attract tourists and improve Muslim-friendly medical tourism. There is no mention of architecture elements in both articles.

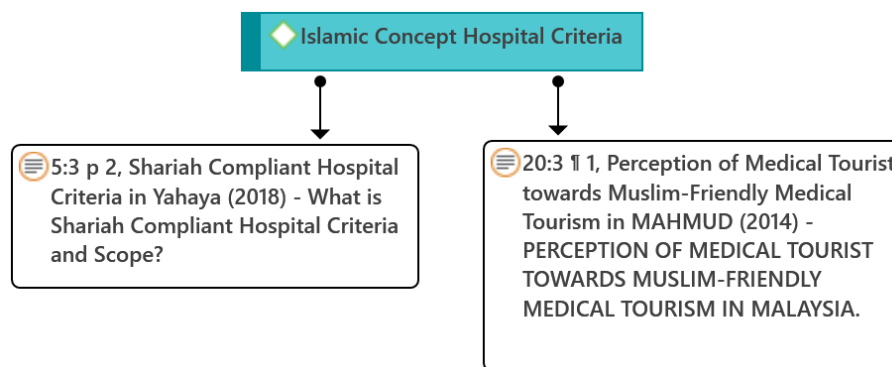


Figure 8: Theme 6 – Islamic Concept Hospital Criteria

Conclusion

Most of the previous discussion by scholars on Islamic design quality in hospital applied in overseas hospitals. However, they are also suitable to be applied in Malaysia. The thematic review results show a lack of previous studies that focus on Islamic design quality for hospitals in Malaysia especially for Islamic Concept Hospital which only focuses on services and management without consideration of implementation of Islamic design qualities in the hospital design. Therefore, this thematic review highlights the need for more future studies on “Islamic Concept Hospital” which hopefully can influence the Malaysian administrators and designers to develop a better hospital environment with the implementation of Islamic quality for the benefit of all Malaysians.

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