



**GUIDELINES OF THERAPEUTIC DESIGN QUALITIES IN PRIVATE
HOSPITALS AND THEIR HOTEL ACCOMMODATION SUPPORTING
MEDICAL TOURISM IN MALAYSIA**

By

FARAJ MOHAMAD

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirements for the Degree of Master of Science**

November 2023

FRSB 2023 5

All material contained within the thesis, including without limitation text, logos, icons, photographs, and all other artwork, is copyright material of Universiti Putra Malaysia unless otherwise stated. Use may be made of any material contained within the thesis for non-commercial purposes from the copyright holder. Commercial use of material may only be made with the express, prior, written permission of Universiti Putra Malaysia.

Copyright © Universiti Putra Malaysia



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

GUIDELINES OF THERAPEUTIC DESIGN QUALITIES IN PRIVATE HOSPITALS AND THEIR HOTEL ACCOMMODATION SUPPORTING MEDICAL TOURISM IN MALAYSIA

By

FARAJ MOHAMAD

November 2023

Chairman : Siow May Ling, PhD
Faculty : Design and Architecture

Medical tourists face various challenges during long-term visits, which necessitates better planning when they need to stay longer in the host country. Despite recent interest in healing environments in the Malaysian setting, there has been a scarcity of research attempts investigating its role and impact on medical tourism. Thus, the aim of this study was to explore the therapeutic qualities of medical tourism accommodation facilities that promote patient health in Malaysia. To address the research aim, a qualitative methodology was followed, whereby two data collection techniques were employed: observations of medical tourism hotel accommodations and interviews with relevant stakeholders. Four case study locations were selected for the purpose of data collection in this study. These locations were four hotel accommodations that have formed partnerships with local private healthcare institutions and are popularly utilized by health seeking tourists. An observation checklist for medical tourism hotel accommodations in Malaysia was developed based on a review of the available literature, consisting of elements such as key location, planning, general interior layout, and exterior configuration and features. In addition, elements of the therapeutic environment were defined based on three theories, namely biophilia theory, therapeutic environment characteristics, and environmental stress theory. These elements guided the development of the interview items, which included natural light and view, artificial light, air quality, color, noise, art works, and landscape. The results revealed that the main physical design characteristics that should be provided in therapeutic environments are comfortable furniture and finishings, larger windows for natural lighting and views, improved indoor air quality, more natural elements, better social spaces, and friendly/accessible facilities. Overall, observations of the medical tourism hotel buildings and interviews with stakeholders and patients validated the present research model.

Keywords: medical tourism, medical facilities, therapeutic environment, healing Environment, healing architecture, tourism management.

SDG: GOAL 3: Good health and well-being.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

**GARIS PANDUAN KUALITI REKA BENTUK TERAPEUTIK DI HOSPITAL
SWASTA DAN PENGINAPAN HOTEL MEREKA YANG MENYOKONG
PELANCONGAN PERUBATAN DI MALAYSIA**

Oleh

FARAJ MOHAMAD

November 2023

Pengerusi : Siow May Ling, PhD
Fakulti : Rekabentuk dan Senibina

Pelancong perubatan menghadapi pelbagai cabaran semasa lawatan jangka panjang, yang memerlukan perancangan yang lebih baik apabila mereka perlu tinggal lebih lama di negara tamu. Meskipun terdapat minat baru-baru ini dalam persekitaran penyembuhan di Malaysia, terdapat kekurangan percubaan penyelidikan yang menyiasat peranan dan kesannya terhadap pelancongan perubatan. Justeru, tujuan kajian ini adalah untuk meneroka kualiti terapeutik kemudahan penginapan pelancongan perubatan yang meningkatkan kesihatan pesakit di Malaysia. Untuk memenuhi matlamat penyelidikan, metodologi kualitatif telah diikuti, di mana dua teknik pengumpulan data digunakan: pemerhatian penginapan hotel pelancongan perubatan dan temu bual dengan pihak berkepentingan yang berkaitan. Empat lokasi kajian kes telah dipilih untuk tujuan pengumpulan data dalam kajian ini. Lokasi tersebut adalah empat penginapan hotel yang telah membentuk perkongsian dengan institusi penjagaan kesihatan swasta tempatan dan digunakan secara popular oleh pelancong yang mengejar kesihatan. Senarai semak pemerhatian untuk penginapan hotel pelancongan perubatan di Malaysia telah dibangunkan berdasarkan kajian literatur yang ada, yang terdiri daripada elemen seperti lokasi utama, perancangan, susun atur dalaman umum, dan konfigurasi dan ciri luaran. Selain itu, elemen persekitaran terapeutik ditakrifkan berdasarkan tiga teori iaitu teori biofilia, ciri persekitaran terapeutik, dan teori tekanan persekitaran. Elemen ini membimbing pembangunan item temu bual, yang termasuk cahaya dan pemandangan semula jadi, cahaya buatan, kualiti udara, warna, bunyi, karya seni, dan landskap. Hasil mendedahkan bahawa ciri reka bentuk fizikal utama yang perlu disediakan dalam persekitaran terapeutik ialah perabot dan kemasan yang selesa, tingkap yang lebih besar untuk pencahayaan dan pemandangan semula jadi, kualiti udara dalaman yang lebih tinggi, unsur yang lebih semula jadi, ruang sosial yang lebih baik, dan kemudahan yang mesra/boleh diakses. Secara keseluruhannya, pemerhatian bangunan hotel pelancongan perubatan dan temu bual dengan pihak berkepentingan dan pesakit mengesahkan model penyelidikan ini.

Kata Kunci: Pelancongan perubatan, Kemudahan perubatan, Persekitaran terapeutik, Persekitaran penyembuhan, Seni bina penyembuhan.

SDG: MATLAMAT 3: Kesihatan dan kesejahteraan yang baik.



ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to everyone who has contributed to the completion of this thesis. First and foremost, I extend my deepest appreciation to my supervisors Dr. May Ling Siow and Assoc. Prof. Dr. Sreetheran Maruthaveeran, for their invaluable guidance, unwavering support, and insightful feedback throughout this journey. Their expertise and encouragement have been instrumental in shaping the direction of this work. Their diverse perspectives and input have enriched the quality of this thesis.

Furthermore, my heartfelt gratitude goes to my family for their unwavering love, encouragement, and understanding throughout this process. Their endless support has been a constant source of strength and motivation. Special thanks to my friends and colleagues for their encouragement, insightful discussions, and moral support. Last but not least, I would like to express my appreciation to all the individuals who directly or indirectly contributed to this thesis. Your assistance, encouragement, and belief in my abilities have been truly invaluable.

Thank you all for being part of this journey.

This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

Siow May Ling, PhD

Senior Lecturer
Faculty of Design and Architecture
Universiti Putra Malaysia
(Chairman)

Sreetheran Maruthaveeran, PhD

Associate Professor, Ts
Faculty of Design and Architecture
Universiti Putra Malaysia
(Member)

ZALILAH MOHD SHARIFF, PhD

Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 11 July 2024

TABLE OF CONTENTS

	Page
ABSTRACT	i
ABSTRAK	iii
ACKNOWLEDGEMENTS	v
APPROVAL	vi
DECLARATION	viii
LIST OF TABLES	xv
LIST OF FIGURES	xvii
LIST OF APPENDICES	xviii
LIST OF ABBREVIATIONS	xix
 CHAPTER	
 1 INTRODUCTION	 1
1.1 Introduction	1
1.2 Research Background	2
1.3 Problem Statement	4
1.4 Research Questions	5
1.5 Research Objectives	5
1.6 Significance of the Study	5
1.7 Scope and Limitations of the Study	6
1.8 Summary	6
 2 LITERATURE REVIEW	 7
2.1 Introduction	7
2.2 Tourism	7
2.2.1 Tourism and Health	9
2.2.1.1 An Introduction to Tourism and Health	10
2.2.1.2 Tourism, Society, and Health	10
2.2.1.3 Health Benefits of Tourism Experiences	12
2.2.1.4 Health-Related Motivations to Travel	13
2.3 Medical Tourism	15
2.3.1 Definition of Medical Tourism	15
2.3.2 History of Medical Tourism	16
2.3.2.1 Earliest Medical Tourism	16
2.3.2.2 Greek Medical Tourism	16
2.3.2.3 Persian, Arabian, and Islamic Medical Tourism	17
2.3.2.4 Indian Medical Tourism	18
2.4 Overview of Malaysia's Medical Tourism	18
2.4.1 Medical Tourism in Malaysia	19
2.4.2 History of Medical Tourism in Malaysia	21
2.4.3 Development of the Medical Tourism in Malaysia	25
2.4.4 Critical Drivers of Malaysia's Medical Tourism	28
2.4.4.1 Government Agencies	28
2.4.4.2 Private Hospitals	29

2.5	Built Environment of Medical Tourists	31
2.5.1	Impact of the Built Environment on Medical Tourists	31
2.5.2	Built Environment of Medical Tourism Facilities	32
2.5.2.1	Accommodation	34
2.6	Therapeutic Environment	36
2.6.1	Healing Environment Design	37
2.6.2	Healing Environment Elements	38
2.6.3	Healing Environment Criteria	40
2.6.4	Therapeutic Environment Conceptual Framework	41
2.7	Theories to Support Therapeutic Environment	42
2.7.1	Biophilia Theory	42
2.7.1.1	Daylight, Restoration, and Health	44
2.7.1.2	Nature Views and Restoration	44
2.7.1.3	Nature Art in Healthcare Settings	46
2.7.1.4	Gardens in Healthcare Facilities	46
2.7.1.5	Effects of Daylight Exposure in Healthcare Facilities	48
2.7.2	Therapeutic Environment Characteristics	49
2.7.2.1	Artwork	49
2.7.2.2	Lighting and Views	50
2.7.2.3	Nature Views, Landscapes, and Gardens	51
2.7.2.4	Colours	52
2.7.2.5	Social Support	53
2.7.2.6	Natural Ventilation	54
2.7.3	Environmental Stress Theory	55
2.7.3.1	Environmental Stressors	55
2.7.3.2	Ambient Environmental Stressors	56
2.7.3.3	Social-Environmental Stressors	59
2.7.4	Comparison of Theories	64
3	RESEARCH DESIGN AND METHODOLOGY	65
3.1	Introduction	65
3.2	Research Design	65
3.3	Selecting Qualitative Research Approach	67
3.4	Selection of the Case Study Approach	68
3.4.1	Case Studies' Sites Selection	68
3.4.2	Description of the Selected Case Studies	70
3.4.2.1	Sheraton Imperial in Kuala Lumpur	70
3.4.2.2	Sunway Resort in Kuala Lumpur	71
3.4.2.3	G Hotel Kelawai in Penang	71
3.4.2.4	Olive Tree Hotel in Penang	71
3.5	Data Collection Techniques	72
3.5.1	Visual Observation as a Data Collection Technique	72
3.5.2	Semi-Structured Interview as a Data Collection Technique	75
3.5.2.1	Interview Sampling and Procedure	76
3.6	Data Analysis	77

3.7	Validity and Reliability	78
3.7.1	Credibility	78
3.7.2	Transferability	79
3.7.3	Dependability and Confirmability	79
3.8	Chapter Summary	79
4	ANALYSIS OF FINDINGS	80
4.1	Introduction	80
4.2	Visual Observation Data Analysis	80
4.2.1	Location	82
4.2.2	Planning	83
4.2.3	General Interior Layout	85
4.2.4	Exterior Configuration and Features	89
4.2.5	Observation Summary	91
4.3	Analysis and Findings of the Interview	91
4.3.1	Question (1) Description of Reactions to the Term “Medical Tourism”	91
4.3.2	Question (2) Description of the Present Opinion of the Medical Tourism Industry in Malaysia	94
4.3.3	Question (3) Description of the Current State of Medical Tourism Facilities/ Accommodation in Malaysia	95
4.3.4	Question (4) Description of the Present Locations of Medical Tourism Accommodations Towards Medical Tourists’ Well-Being	98
4.3.5	Question (5) Description of the Impact of Material Applied in the Interior Towards Medical Tourists’ Senses and Well-Being	100
4.3.6	Question (6) Description of the Impact of Interior Furniture’s Layout and Material Selection on Medical Tourists’ Senses and Well-Being	102
4.3.7	Question (7) Description of the Impact of Natural Daylight Integration on Medical Tourists’ Senses and Well-Being	104
4.3.8	Question (8) Description of How Natural Ventilation Integration in Accommodation Design Affects Medical Tourists’ Well-Being	107
4.3.9	Question (9) Description of How Vegetation, Landscape, and Water element Integration in Accommodation Design Affect Medical Tourists’ Well-Being	108
4.3.10	Question (10) Description of How Social Integration in Accommodation Design Affect Medical Tourists’ Well-Being	111
4.3.11	Question (11) The Barriers Faced by the Developers in Designing a Rehabilitative Medical Tourism Accommodation Environment	113
4.3.12	Question (12) The Medical Tourists’ Main Concerns Regarding Medical Tourism Accommodation Design and Planning	114

4.3.13	Question (13) Policies and Guidelines Guide the Design and Planning of Medical Tourism Facilities	117
4.3.14	Question (14) Description of the Universal Design Integration Concerning Medical Tourists' Well-Being in Accommodation Design	118
4.3.15	Question (15) Observation Item of Accommodation Facilities' Design/Planning	119
4.3.16	Question (16) Improve the Policy and Guidelines Concerning Medical Tourism Accommodation Design	121
4.4	Summary of Analysis	122
4.5	Emerging Themes	126
4.6	Chapter Summary	126
5	RESULTS AND DISCUSSION	128
5.1	Introduction	128
5.2	Discussion of Findings	128
5.2.1	Physical Design and Therapeutic Design Characteristics	129
5.2.2	General Issues	130
5.3	Recommendations for Medical Tourism Accommodation Improvement	131
5.3.1	Physical Design and Therapeutic Design Characteristics	132
5.3.1.1	Comfortable Furniture and Finishing	132
5.3.1.2	Oversized Windows for Natural Lighting and Views	133
5.3.1.3	Indoor Air Quality	133
5.3.1.4	Natural Elements	134
5.3.1.5	Social Space	134
5.3.1.6	Friendly, Accessible Facilities	135
5.3.2	General Recommendations	135
5.3.2.1	Proper Location for Medical Tourism Accommodation	135
5.3.2.2	Proper Design Showcases Malaysian Culture with Flexibility for Medical Tourists' Preferences Based on Their Culture	136
5.3.2.3	Clear Policy and Guidelines on the Quality of the Therapeutic Environment in Medical Tourism Accommodation	136
5.4	Research Contributions	136
5.5	Research Limitations	137
5.6	Future Works	137
5.7	Research Conclusion	138

REFERENCES	139
APPENDICES	160
BIODATA OF STUDENT	163
PUBLICATION	164



LIST OF TABLES

Table	Page
2.1 A Description Some of the Types of Tourism	9
2.2 Medical Tourism Statistics in Malaysia (MHTC, 2019)	20
2.3 A Description of Medical Tourism Facilities	34
2.4 Theory Comparisons	64
3.1 List of Hotels (Case Studies)	69
3.2 First Stage of Observation	74
3.3 Stakeholders' Affiliation Description	77
4.1 Checklist Sections of Visual Observation	81
4.2 Location Checklist	82
4.3 Planning Checklist	84
4.4 General Interior Layout Checklist	85
4.5 Exterior Configuration and Features Checklist	90
4.6 Description of Reactions to the Term "Medical Tourism"	92
4.7 Description of the Present Opinion of the Medical Tourism Industry in Malaysia	94
4.8 Description of the Current State of Medical Tourism Facilities/ Accommodation in Malaysia	96
4.9 Description of the Present Locations of Medical Tourism Accommodations Towards Medical Tourists' Well-Being	98
4.10 Description of the Impact of Material Applied in the Interior Towards Medical Tourists' Senses and Well-Being	100
4.11 Description of the Impact of Interior Furniture's Layout and Material Selection on Medical Tourists' Senses and Well-Being	103
4.12 Description of the Impact of Natural Daylight Integration on Medical Tourists' Senses and Well-Being	104
4.13 Description of How Natural Ventilation Integration in Accommodation Design Affects Medical Tourists' Well-Being	107

4.14	Description of How Vegetation, Landscape, and Water element Integration in Accommodation Design Affect Medical Tourists' Well-Being	109
4.15	Description of How Social Integration in Accommodation Design Affect Medical Tourists' Well-Being	111
4.16	The Barriers Faced by the Developers in Designing a Rehabilitative Medical Tourism Accommodation Environment	113
4.17	The Medical Tourists' Main Concerns Regarding Medical Tourism Accommodation Design and Planning	115
4.18	Policies and Guidelines Guide the Design and Planning of Medical Tourism Facilities	117
4.19	Description of the Universal Design Integration Concerning Medical Tourists' Well-Being in Accommodation Design	118
4.20	Observation Item of Accommodation Facilities' Design/Planning	119
4.21	Improve the Policy and Guidelines Concerning Medical Tourism Accommodation Design	121
4.22	Summary of Analysis	123

LIST OF FIGURES

Figure	Page
2.1 Ancient Roman Baths	17
2.2 Medical Tourism Facilities (Lunt et al., 2011)	33
2.3 Healing Environment Elements	40
2.4 Current Conceptual Framework	42
2.5 Systolic Blood Pressure and Muscle Tension During Recovery From Stress in Persons Exposed to Natural or Urban Settings Lacking Nature (Söderlund, 2019)	45
3.1 Research Design Stages	66
4.1 Facilities for Medical Tourism at Clinic in Sheraton Hotel	83
4.2 Focal Point at Celestial Court at Sheraton Imperial KL	84
4.3 Disabled Rooms at Sheraton Imperial KL	86
4.4 Wellness Suites at Sunway Resort	86
4.5 Kulsi Lobby at Sheraton Imperial KL	87
4.6 Natural Material Selection in G Hotel Kelawai Room	88
4.7 Natural Images at the Olive Tree Hotel	88
4.8 Natural shape and Form at Kulsi Lobby Lounge in Sheraton Imperial KL	89
4.9 Natural Images at the Olive Tree Hotel	90
5.1 Therapeutic Environment Research Framework	128
5.2 Interview Analysis Results for Medical Tourism Accommodation Improvement	132

LIST OF APPENDICES

Appendix	Page
A Checklist	160
B Expert Interview	161
C Patient Interview	162



LIST OF ABBREVIATIONS

ASHE	American Society of Health Care Engineering
THE	The Healing Environment
GDP	Gross Domestic Product
UNWTO	United Nations World Tourism Organization
WHO	World Health Organization
MHTC	Malaysia Healthcare Travel Council
MOH	Ministry of Health
NADMA	National Disaster Management Agency
IATA	International Air Transport Association
IUCN	International Union for Conservation of Nature
WTTC	World Travel & Tourism Council
MOTAC	Ministry of Tourism and Culture
EBD	Evidence-Based Design
FVA	Family Vacation Association
QoL	Quality of Life
TDC	Tourism Development Corporation
FMP	Fourth Malaysia Plan
TCM	Traditional Chinese Medicine
MMC	Malaysian Medical Council
NIH	National Institution of Health

CHAPTER 1

INTRODUCTION

1.1 Introduction

Medical tourism has emerged as one of the fastest-growing service industries in the 21st century, combining two fundamentally separate domains of existence — “health” and “tourism” — to produce unique and specialized service goods (Hadian et al., 2021). The medical tourism industry is comprised of businesses, institutions, and organizations, such as hospitals and travel agencies, that supply products and/or services to medical tourists (Rai, 2019). It is a global phenomenon that has developed into a substantial part of the healthcare industry by capitalizing on the market dynamics of demand and supply (Ghosh and Mandal, 2019). With its exponential development rate, the industry has become a significant component of international service exports. However, estimating the actual size of this expanding industry is difficult due to the lack of a systematic data collection system and the need for a universally acknowledged definition of medical tourists (Rai, 2019).

The worldwide expansion and significance of tourism as an industry has led several countries to recognize medical tourism as an essential national sector (Ghosh and Mandal, 2019). To capitalize on this potential, countries have adopted several methods, such as developing tax exemption programs to stimulate investment in facilities to serve medical tourists and organizing international roadshows to promote a nation as a desirable vacation spot (Singh, 2019). Meanwhile, private hospitals have expanded their capacity by adopting cutting-edge medical technologies and practices, which are mostly carried out by qualified specialists comparable to those at renowned medical facilities in the United States and Europe (Borg and Ljungbo, 2018).

Notably, infrastructure and facilities play a crucial role in the development of medical tourism, especially in typically remote areas and mountainous regions where the scenery is delicate. Infrastructure primarily comprises accommodation, transportation, and institutional assistance, including medical and institutional facilities. Accommodation (i.e., hotels, hospitals, and medical centres), in particular, is essential for tourists who require a place to stay during their medical journey. Nonetheless, determining accommodations at medical facilities requires a great deal of subtlety and a comprehensive understanding of legal requirements, dietary needs, assistive technology, and safely adapted procedures (Rai, 2019).

Indeed, the transformation of largely closed national healthcare into value-based, open, accessible, and adaptable whole healing places involves articulating new, sustainable objectives on a new platform of integrated values. Healthcare requirements vary around the globe and are complicated, ever-evolving, and fluid. In the context of a country, the term “healthcare” encompasses a broader range of services than just “traditional treatment,” and it includes various aspects that contribute to creating a healthy environment for both residents and tourists (Zhang, 2018). Healing environments in

healthcare facilities reflect the physical setting that primarily assists patients and their families in dealing with the stressors and unfavourable psychological impacts of hospitalization, sickness, medical visits, and grief. For example, designing hospitals, hotels, and therapeutic centres to create supportive surroundings for recovery and address wellness features (e.g., art, lighting, and music) can help reduce stress. This benefits the health of all occupants, including patients and their families who are there on a temporary basis, as well as those who are permanently employed there. Consequently, there is a need to study the creation of a healthy environment for workers, tourists, and members of the community involved in the medical tourism sector (Bell et al., 2018).

In the context of sustainability, the global healthcare system's value-based principles must be competitive, adaptable, accessible, and universal, as they influence the delivery of contemporary healthcare (Sani and Isa, 2021). Correspondingly, the American Society of Health Care Engineering (ASHE) emphasizes multidimensionality and sustainable design, both of which are reflected through collaborative involvement in the design of a Total Healing Environment (THE) in the context of a 21st-century healthcare delivery system. THE is influenced by various factors, including spaces, design features, materials, noise, and social aspects created by design (Khodeir and Gamal, 2019). The concept of THE as a healthcare model thus has the potential to enhance the traditional healthcare system (Sani and Isa, 2021).

Specifically, hospital complexes designed on an integrated platform and value-based principles of sustainable organic architecture create THEs that play a significant role in the modern healthcare concept (Perović and Krklješ, 2017). Though a comprehensive explanation of the healing environment cannot be found in the literature, it is often understood as the physical and cultural ambiance that assists patients, relatives, and staff members during hospitalization and treatment. This research aimed to identify how the design and planning of medical facilities can aid in the recuperation and improvement of patients' health. The study also sought to explore the methods of creating a healing environment in response to the growing health challenges in Malaysia and the world.

1.2 Research Background

The outlook for the global tourism industry is optimistic, with a 6% growth in GDP reported by the UNWTO Tourism Highlight in the 2019 edition. The number of international tourists increased to 1.50 billion in 2019 from 1.03 billion in 2012, and the estimated number of tourists is expected to increase to 1.8 billion by 2030. Interestingly, tourists are increasingly interested in traveling for healing and relaxation, and the focus has shifted mainly to medical tourism, as highlighted by Wright and Zascerinska, (2023). According to Garg et al. (2020), people travel to seek treatment at lower costs, leading to the industry's global growth. In the last decade, medical tourism has been one of the world's fastest-growing industries, with people traveling across the globe in search of the best treatment options, value-for-money services, and customer satisfaction. This has resulted in increased competition among countries for medical tourists and hospitals, with a focus on health promotion, disease prevention, and the availability of health-related information (Gredičak and Demonja, 2020).

In Southeast Asia, Malaysia has experienced an inflow of patients from less developed countries seeking better medical services and facilities, leading to growth in the nation's commercial sectors, including retail, food and beverage, and hotels. According to the magazine *International Living*, Malaysia was voted the "Best Country in the World for Healthcare" in 2015, 2016, 2017, and 2019, ahead of France, Thailand, Ecuador, Mexico, and Costa Rica, by the Annual Global Retirement Index. This gold standard in the healthcare sector has led *International Living* to rank Malaysia as the fifth-best place for retiring in 2019. Currently, there are 76 medical centres and hospitals registered under the Malaysia Healthcare Travel Council (MHTC) accreditation (MHTC, 2019). Malaysia recorded 1.2 million medical tourists in 2019, contributing to RM 1.5 billion in receipts. Malaysia's target for 2020 was RM2.8 billion in medical revenue, with an estimated economic impact of RM10 billion. Sherene Azli, the CEO of MHTC, reported that about 60% of medical tourists in Malaysia are Indonesians, with China and the Middle East accounting for the remaining percentage.

Medical tourism involves selecting a destination based on the activities and sightseeing opportunities provided, in addition to traveling for medical reasons. This applies to both patients and those accompanying them, as the destination's features (e.g., warm climate, saltwater) can play a vital part in the healing process (Elbaz et al., 2021). According to (Peng et al., 2020), environmental psychology is defined as the science of people's relationships to the places in which they live and work. Built environments, both natural and manufactured, can influence human behaviours, psychological states, and interpersonal relationships positively or negatively (Junot et al., 2018). Understanding how the environment affects individuals psychologically and physically is crucial in designing the built environment, comprehending the challenges they face, and alleviating those challenges.

It is crucial to note that healthcare buildings are distinct from factory buildings and form a community where patients are key to the successful functioning of the entire system. Visualization, analysis, and fulfillment of patients' needs and expectations are thus required, especially in settings such as long-term patient accommodation. As such, healthcare facilities should be designed as living spaces for patients, not as warehouses for the sick (Gharaveis et al., 2018). Healthcare design should also meet professional requirements while facilitating the healing process and preventing harm. Strategic planning that focuses on developing healthcare settings welcoming to patients' families and friends, offering more value to humans than technology, and allowing personalization of care for each patient through flexibility can be crucial in attracting international and domestic tourism (Abouhashem et al., 2018; Gholami et al., 2020). In this regard, humanizing architecture can have a positive impact on the healing process by providing bioclimatic comfort that enhances patient well-being. Therefore, in response to the health challenges in Malaysia and the world, this study aimed to explore how to create healing environments and shed light on the characteristics of interior spaces in clinical environments for medical tourism.

1.3 Problem Statement

In 1998, the Malaysian government identified medical tourism as a potential sector for development and one of the National Key Economic Areas to help Malaysia become a developed country. Significant investments have been made in its development over the last few years by both the public and private sectors (Chandran et al., 2018). However, Malaysia is not the sole player in Southeast Asia, and there is intense competition in the region. Therefore, the government of Malaysia, medical service providers, and other relevant parties must pay more attention to attracting more potential patients (Tan et al., 2019).

Although there is ample literature available about the medical tourism industry and the competitiveness of destinations, as well as how to develop them, there is a gap in research on the long-term experiences of medical tourists, as highlighted by Nazem et al. (2017). The study revealed that medical tourists face challenges in the long run, which necessitates better planning for those who need to stay longer in the host country. Moreover, Azmi et al. (2018) noted that despite media coverage and interest in the healing environment in Malaysia, there needs to be more hard research evidence on its role and impact pertaining medical tourism. Consequently, the researchers concluded that medical tourism in Malaysia introduces a range of attendant risks and opportunities for patients.

The environment plays a crucial role in shaping human behaviour, and designing built environments that cater to the needs of their occupants is of utmost importance. Long-term medical tourists who leave their homes for a new environment seek convenient services and better accommodations to improve their health (Suess et al., 2018). However, medical tourists often feel stressed, and their recuperation process can be hindered due to the lack of nature-based therapeutic design quality in their accommodations. As highlighted by Huang and Xu (2018), the therapeutic design of medical tourism facilities can significantly impact the physical and psychological well-being of medical tourists during treatment and the healing process. Therefore, careful consideration must be given to the design of medical tourism accommodation facilities to ensure they meet the needs of their occupants.

In conclusion, there is a need for a concerted effort to establish a healing environment in the design of medical tourism hotel accommodations in Malaysia. This requires more stringent requirements in project briefs by the Ministry of Health, as well as the consideration of negative experiences raised by health seekers, staff, and visitors. Therefore, this study attempts to extend the area of investigation of healing environments beyond traditional healing spaces such as patients' wards, including hotel accommodations used by medical tourists highlighting the importance of the design of interior spaces within the aforementioned accommodations. Ultimately, the inclusion of therapeutic design quality is essential for the recovery process for medical tourists to be more effective. This issue is compounded by the need for more comprehensive research and analysis on medical tourism facilities, particularly accommodations. Therefore, it is crucial to investigate the therapeutic design qualities of current medical tourism hotel

accommodation facilities and gather the input of experts and medical tourists on ways to promote tourists' well-being.

1.4 Research Questions

The main research question of this study is as follows:

How can medical tourism accommodation facilities be designed with therapeutic qualities that promote patient health in Malaysia?

The specific research questions of this study are as follows:

1. What are the therapeutic design characteristics of medical tourism hotel accommodations in Malaysia?
2. What improvements can be made to the design of medical tourism hotel accommodations?

1.5 Research Objectives

To answer the research questions above, the objectives of this study were set as follows:

- To investigate therapeutic design elements in medical tourism hotel accommodations in Malaysia.
- To identify the set of possible improvements to current medical tourism's hotel accommodations design.
- To provide recommendations on designing hotel accommodation environments for medical tourists.

1.6 Significance of the Study

The outcomes and findings of this research can provide a valuable resource for the development and design of medical tourism hotel accommodations in Malaysia. The study underscores the advantages of integrating therapeutic design features into medical tourism hotel accommodations, which can positively influence the health and recovery process of medical tourists, while also potentially boosting the success of the medical tourism industry in Malaysia.

1.7 Scope and Limitations of the Study

The primary focus of this study was to identify the key criteria for creating a therapeutic environment in medical tourism accommodations and to compare these criteria with the current accommodations available in Malaysia. The study also highlights limitations and issues concerning the quality of therapeutic environments in medical tourism accommodations and provides recommendations on how to address these issues for creating a more effective therapeutic environment. However, it should be noted that this study only covered medical tourism accommodations in the Klang Valley and Penang regions of Malaysia.

1.8 Summary

This chapter provides an introduction to the issues addressed in this research and their significance. The primary objective of this study was to determine how to create a therapeutic environment in medical tourism accommodations and its impact on the recuperation process and well-being of medical tourists. This study aims to contribute to the existing body of literature on the healing environment and the influence of its elements on the healing process. The research explores the relationship between the design elements of medical tourism centres and the progress of patient healing, with the ultimate goal of advancing medical tourism in Malaysia. The subsequent chapter will delve into the literature review and underlying theories of this study.

REFERENCES

- Abdullah, N., Borhanuddin, B., Patah, A. E. A., Abdullah, M. S., Dauni, A., Kamaruddin, M. A., ... Jamal, R. (2018). Utilization of Complementary and Alternative Medicine in Multiethnic Population: The Malaysian Cohort Study. *Journal of Evidence-Based Integrative Medicine*, 23, 1–9. <https://doi.org/10.1177/2515690X18765945>
- Abouelmagd, D. (2023). Sustainable urbanism and cultural tourism, the case of the Sphinx Avenue, Luxor. *Alexandria Engineering Journal*, 71, 239–261. <https://doi.org/10.1016/j.aej.2023.03.041>
- Abouelmehdi, K., Beni-Hessane, A., & Khaloufi, H. (2018). Big healthcare data: preserving security and privacy. *Journal of Big Data*, 5(1), 1–18. <https://doi.org/10.1186/s40537-017-0110-7>
- Abouhashem Abadi, F., Ghasemian Sahebi, I., Arab, A., Alavi, A., & Karachi, H. (2018). Application of best-worst method in evaluation of medical tourism development strategy. *Decision Science Letters*, 7(1), 77–86. <https://doi.org/10.5267/j.dsl.2017.4.002>
- Abulawi, R., Walker, S., & Boyko, C. (2019). Healing by Design. In *Research into Design for a Connected World* (Vol. 2, pp. 427–438). https://doi.org/10.1007/978-981-13-5977-4_36
- Adams, W. C. (2015). Conducting Semi-Structured Interviews. In *Handbook of Practical Program Evaluation* (pp. 492–505). <https://doi.org/10.1002/9781119171386.ch19>
- Adrian, J., Seyfried, A., & Sieben, A. (2020). Crowds in front of bottlenecks at entrances from the perspective of physics and social psychology. *Journal of the Royal Society Interface*, 17(165). <https://doi.org/10.1098/rsif.2019.0871>
- Ahmad, S., Verma, T., & Arif Kamal, M. (2023). Evidence Based Design Guidelines for a Healthcare Environment: A Conceptual Framework. *American Journal of Civil Engineering and Architecture*, 11(3), 77–88. <https://doi.org/10.12691/ajcea-11-3-3>
- Akpan-Idiok, P., & Ackley, A. (2017). Sustainable Therapeutic Environment; Impacts of the Indoor Environment on Users' Perception of Wellbeing in Public Healthcare Facilities in Calabar Municipality, Nigeria. *World Journal of Pharmaceutical and Medical Research*, 3(6), 27–37. Retrieved from www.wjpmr.com
- Al-Sharaa, A., Adam, M., Amer Nordin, A. S., Alhasan, A., & Mundher, R. (2022). A User-Centered Evaluation of Wayfinding in Outpatient Units of Public Hospitals in Malaysia: UMMC as a Case Study. *Buildings*, 12(3), 364. <https://doi.org/10.3390/buildings12030364>

- Al-sharaa, A., Adam, M., Siddiq, A., Nordin, A., Alhasan, A., Mundher, R., & Zaid, O. (2022). Enhancing Wayfinding Performance in Existing Healthcare Facilities Using Virtual Reality Environments to Revise the Distribution of Way-Showing Devices. *Buildings*, 12(6), 790. <https://doi.org/10.3390/buildings12060790>
- Asfour, K. S. (2020). Healing architecture: a spatial experience praxis. *Archnet-IJAR*, 14(2), 133–147. <https://doi.org/10.1108/ARCH-03-2019-0055>
- Asri, N. S. M., & Nordin, N. (2021). The determinants factors towards patients' satisfaction in medical tourism services in Malaysia. *AIP Conference Proceedings*, 2339(May). <https://doi.org/10.1063/5.0044669>
- Attia, D. (2021). Factors of Indoor Therapeutic Environment and their Effects on Patients and Health care workers. *International Design Journal*, 11(4), 145–158. <https://doi.org/10.21608/idx.2021.180893>
- Awtuch, A., & Gębczyńska-Janowicz, A. (2017). Art and Healthcare - Healing Potential of Artistic Interventions in Medical Settings. *IOP Conference Series: Materials Science and Engineering*, 245(4). <https://doi.org/10.1088/1757-899X/245/4/042037>
- Azmi, N. A., Chandran, S. D. S., & Puteh, F. (2018). Medical Tourism Industry in Malaysia in the 21st century. *Southeast Asian Social Science Review*, 2(2), 37–53. Retrieved from https://www.researchgate.net/publication/322885745_Medical_Tourism_Industry_in_Malaysia_in_the_21st_century
- Barcarolo, M. (2022). *Healing Waters: The Natural Mineral Springs of Roman Italy, Their Curative Properties and Associated Deities* (UNIVERSITY OF ARIZONA). Retrieved from <https://www.proquest.com/openview/cd7de1ed06e683024b699d590d04ce97/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Beers, C. L. (2019). The Architecture of New Hospitals: Complex yet Simple and Beautiful. In *The Modern Hospital* (pp. 411–420). https://doi.org/10.1007/978-3-030-01394-3_38
- Belčáková, I., Galbavá, P., & Majorošová, M. (2018). Healing and therapeutic landscape design - Examples and experience of medical facilities. *Archnet-IJAR*, 12(3), 128–151. <https://doi.org/10.26687/archnet-ijar.v12i3.1637>
- Bell, S. L., Foley, R., Houghton, F., Maddrell, A., & Williams, A. M. (2018). From therapeutic landscapes to healthy spaces, places and practices: A scoping review. *Social Science and Medicine*, 196(November 2017), 123–130. <https://doi.org/10.1016/j.socscimed.2017.11.035>
- Benfield, J. A., Nurse, G. A., Jakubowski, R., Gibson, A. W., Taff, B. D., Newman, P., & Bell, P. A. (2014). Testing Noise in the Field: A Brief Measure of Individual Noise Sensitivity. *Environment and Behavior*, 46(3), 353–372.

<https://doi.org/10.1177/0013916512454430>

- Bettiga, D., Mandolfo, M., Lolatto, R., & Lamberti, L. (2021). Investigating the effect of price tag colours on cortical, cardiac and ocular responses. *2021 4th International Conference on Bio-Engineering for Smart Technologies (BioSMART)*, 82(5), 1–5. <https://doi.org/10.1109/BioSMART54244.2021.9677671>
- Bimonte, S., & Faralla, V. (2015). Happiness and Outdoor Vacations Appreciative versus Consumptive Tourists. *Journal of Travel Research*, 54(2), 179–192. <https://doi.org/10.1177/0047287513513171>
- Blaydes, L., & Paik, C. (2021). Muslim Trade and City Growth before the Nineteenth Century: Comparative Urbanization in Europe, the Middle East and Central Asia. *British Journal of Political Science*, 51(2), 845–868. <https://doi.org/10.1017/S0007123419000267>
- Borg, E. A., & Ljungbo, K. (2018). International market-oriented strategies for medical tourism destinations. *International Journal of Market Research*, 60(6), 621–634. <https://doi.org/10.1177/1470785318770134>
- Brambilla, A., Rebecchi, A., & Capolongo, S. (2019). Evidence Based Hospital Design. A literature review of the recent publications about the EBD impact of built environment on hospital occupants' and organizational outcomes. *Annali Di Iggiene Medicina Preventiva e Di Comunita*, 31(2), 165–180. <https://doi.org/10.7416/ai.2019.2269>
- Bronner, F., & de Hoog, R. (2016). Crisis Resistance of Tourist Demand: The Importance of Quality of Life. *Journal of Travel Research*, 55(2), 190–204. <https://doi.org/10.1177/0047287514541006>
- Caddick, Z. A., Gregory, K., Arsintescu, L., & Flynn-Evans, E. E. (2018). A review of the environmental parameters necessary for an optimal sleep environment. *Building and Environment*, 132(September 2017), 11–20. <https://doi.org/10.1016/j.buildenv.2018.01.020>
- Cao, X., & Sun, J. (2018). Exploring the effect of overload on the discontinuous intention of social media users: An S-O-R perspective. *Computers in Human Behavior*, 81, 10–18. <https://doi.org/10.1016/j.chb.2017.11.035>
- Carpman, J. R., & Grant, M. A. (2016). Design That Cares: Planning Health Facilities for Patients and Visitors. In *Wiley* (3rd ed). Retrieved from <https://www.wiley.com/en-us/Design+That+Cares%3A+Planning+Health+Facilities+for+Patients+and+Visitors%2C+3rd+Edition-p-9780787988111>
- Cederberg, H. (2019). The Meaning of Holiday for Children in the Context of Social Tourism (UNIVERSITY OF EASTERN FINLAND). Retrieved from https://erepo.uef.fi/bitstream/handle/123456789/22032/urn_nbn_fi_uef-20191322.pdf

- Chalmin-Pui, L. S., Griffiths, A., Roe, J., Heaton, T., & Cameron, R. (2021). Why garden? – Attitudes and the perceived health benefits of home gardening. *Cities*, 112(February). <https://doi.org/10.1016/j.cities.2021.103118>
- Cham, T. H., Lim, Y. M., Sia, B. C., Cheah, J. H., & Ting, H. (2021). Medical Tourism Destination Image and its Relationship with the Intention to Revisit: A Study of Chinese Medical Tourists in Malaysia. *Journal of China Tourism Research*, 17(2), 163–191. <https://doi.org/10.1080/19388160.2020.1734514>
- Chandran, S. D., Puteh, F. A., Zianuddin, A., Azmi, N. A., & Khuen, W. W. (2018). Key Drivers of Medical Tourism in Malaysia. *Journal of Tourism, Hospitality & Culinary Arts (JTHCA) 2018*, 10(1), 15–26.
- Chandran, S. D., Puteh, F., Azmi, N. A., & Mohd Suki, N. (2020). Exploring the development of medical tourism industry in Southeast Asia region. *International Journal of Business Ecosystem & Strategy (2687-2293)*, 2(3), 28–32. <https://doi.org/10.36096/ijbes.v2i3.193>
- Chen, C. C., & Petrick, J. F. (2016). The Roles of Perceived Travel Benefits, Importance, and Constraints in Predicting Travel Behavior. *Journal of Travel Research*, 55(4), 509–522. <https://doi.org/10.1177/0047287514563986>
- Chen, C. C., Petrick, J. F., & Shahvali, M. (2016). Tourism Experiences as a Stress Reliever: Examining the Effects of Tourism Recovery Experiences on Life Satisfaction. *Journal of Travel Research*, 55(2), 150–160. <https://doi.org/10.1177/0047287514546223>
- Chen, Q., & Ou, D. (2021). The effects of classroom reverberation time and traffic noise on English listening comprehension of Chinese university students. *Applied Acoustics*, 179, 108082. <https://doi.org/10.1016/j.apacoust.2021.108082>
- Chowdhury, A., & Shil, N. C. (2021). Thinking ‘Qualitative’ Through a Case Study: Homework for a Researcher. *American Journal of Qualitative Research*, 5(2 (In Progress)), 190–210. <https://doi.org/10.29333/ajqr/11280>
- Cooper, M. A., & Buckley, R. (2022). Tourist Mental Health Drives Destination Choice, Marketing, and Matching. *Journal of Travel Research*, 61(4), 786–799. <https://doi.org/10.1177/00472875211011548>
- Creswell, J. W., & Creswell, J. D. (2018). Research design : qualitative, quantitative, and mixed methods approaches. In *SAGE Publications, Inc.* (5 ed.). Retrieved from https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf
- Cretu, C. M., Turtureanu, A. G., Sirbu, C. G., Chitu, F., Marinescu, E. Ș., Talaghir, L. G., & Robu, D. M. (2021). Tourists’ perceptions regarding traveling for recreational or leisure purposes in times of health crisis. *Sustainability*, 13(15). <https://doi.org/10.3390/su13158405>

- Daelemans, B. (2020). Healing space: the synaesthetic quality of church architecture. *Religions*, 11(12), 1–18. <https://doi.org/10.3390/rel11120635>
- Dalke, H., Little, J., Niemann, E., Camgoz, N., Steadman, G., Hill, S., & Stott, L. (2006). Colour and lighting in hospital design. *Optics and Laser Technology*, 38(4), 343–365. <https://doi.org/10.1016/j.optlastec.2005.06.040>
- De La Hoz-Correa, A., Muñoz-Leiva, F., & Bakucz, M. (2018). Past themes and future trends in medical tourism research: A co-word analysis. *Tourism Management*, 65, 200–211. <https://doi.org/10.1016/j.tourman.2017.10.001>
- De Luca, R., & Botelho, D. (2021). The unconscious perception of smells as a driver of consumer responses: a framework integrating the emotion-cognition approach to scent marketing. *AMS Review*, 11(1–2), 145–161. <https://doi.org/10.1007/s13162-019-00154-8>
- DeBoom, S. (2021). *Environmental Healing Through the Use of Nature and the Built Space*. Miami University.
- Dijkstra, K., Pieterse, M. E., & Pruyn, A. T. H. (2008). Individual differences in reactions towards color in simulated healthcare environments: The role of stimulus screening ability. *Journal of Environmental Psychology*, 28(3), 268–277. <https://doi.org/10.1016/j.jenvp.2008.02.007>
- Dimitrovski, D., & Todorović, A. (2015). Clustering wellness tourists in spa environment. *Tourism Management Perspectives*, 16, 259–265. <https://doi.org/10.1016/j.tmp.2015.09.004>
- Dinkoksung, S., Pitakaso, R., Khonjun, S., Srichok, T., & Nanthasamroeng, N. (2023). Modeling the medical and wellness tourism supply chain for enhanced profitability: An open innovation approach. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3), 100137. <https://doi.org/10.1016/j.joitmc.2023.100137>
- Douglas, C. H., & Douglas, M. R. (2004). Patient-friendly hospital environments: Exploring the patients' perspective. *Health Expectations*, 7(1), 61–73. <https://doi.org/10.1046/j.1369-6513.2003.00251.x>
- Ekstom, G. (2020). *Compatible Spaces for Emotional Support of Child and Adolescent Patients* (Swedish University of Agricultural Sciences). Retrieved from <http://stud.epsilon.slu.se>
- Elbaz, A. M., Abou Kamar, M. S., Onjewu, A.-K. E., & Soliman, M. (2021). Evaluating the Antecedents of Health Destination Loyalty: The Moderating Role of Destination Trust and Tourists' Emotions. *International Journal of Hospitality & Tourism Administration*, 24(1), 1–28. <https://doi.org/10.1080/15256480.2021.1935394>
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative Content Analysis. *SAGE Open*, 4(1), 215824401452263.

<https://doi.org/10.1177/2158244014522633>

- Engineer, A., Sternberg, E. M., & Najafi, B. (2018). Designing Interiors to Mitigate Physical and Cognitive Deficits Related to Aging and to Promote Longevity in Older Adults: A Review. *Gerontology*, 64(6), 612–622. <https://doi.org/10.1159/000491488>
- Escoto, B. E. B., Boza, M. P., & Madrigal, D. F. (2019). Sustainable tourism: A competitiveness strategy perspective in Baja California. *Sustainability*, 11(24). <https://doi.org/10.3390/SU11246934>
- Fermoso, J., Torres, T., Antón, M. Á., Peña, A., Muñoz, J., Torre, S., ... de Barros, R. O. (2021). Improvement of Classroom Conditions and CO2 Concentrations Through Natural Ventilation Measures Reinforced with NBS Implementation. In *Environmental Science and Engineering* (pp. 2305–2309). https://doi.org/10.1007/978-3-030-51210-1_361
- Fink, D. (2019). *A new definition of noise: noise is unwanted and/or harmful sound. Noise is the new 'secondhand smoke'.* 39(2020), 050002. <https://doi.org/10.1121/2.0001186>
- Foley, B. M., Haglin, J. M., Tanzer, J. R., & Eltorai, A. E. M. (2019). Patient care without borders: A systematic review of medical and surgical tourism. *Journal of Travel Medicine*, 26(6), 1–11. <https://doi.org/10.1093/jtm/taz049>
- Franck, L. S., Ferguson, D., Fryda, S., & Rubin, N. (2017). The influence of family accommodation on pediatric hospital experience in Canada. *BMC Health Services Research*, 17(1), 0–8. <https://doi.org/10.1186/s12913-017-2529-0>
- Fricke, O. P., Halswick, D., Längler, A., & Martin, D. D. (2019). Healing Architecture for Sick Kids. *Zeitschrift Für Kinder- Und Jugendpsychiatrie Und Psychotherapie*, 47(1), 27–33. <https://doi.org/10.1024/1422-4917/a000635>
- Ganesh, G. A., Sinha, S. L., Verma, T. N., & Dewangan, S. K. (2021). Investigation of indoor environment quality and factors affecting human comfort: A critical review. *Building and Environment*, 204(March), 108146. <https://doi.org/10.1016/j.buildenv.2021.108146>
- Gardiner, S., Janowski, I., & Kwek, A. (2023). Self-identity and adventure tourism: Cross-country comparisons of youth consumers. *Tourism Management Perspectives*, 46(November 2022), 101061. <https://doi.org/10.1016/j.tmp.2022.101061>
- Garg, R., Batra, R., & Banerji, A. (2020). Low Cost, Quality Treatment and Excellent Hospitality Makes India the Best Destination for Medical Tourism. *International Journal of Innovative Research in Medical Science*, 5(01), 10–15. <https://doi.org/10.23958/ijirms/vol05-i01/614>
- Gatersleben, B., & Griffin, I. (2017). Environmental Stress. In *Handbook of Environmental Psychology and Quality of Life Research* (pp. 469–485).

https://doi.org/10.1007/978-3-319-31416-7_25

- Gatt, G., & Jiang, L. (2021). Can Different Types of Non-Territorial Working Satisfy Employees' Needs for Autonomy and Belongingness? Insights From Self-Determination Theory. *Environment and Behavior*, 53(9), 953–986. <https://doi.org/10.1177/0013916520942603>
- Gharaveis, A., Hamilton, D. K., & Pati, D. (2018). The Impact of Environmental Design on Teamwork and Communication in Healthcare Facilities: A Systematic Literature Review. *Health Environments Research and Design Journal*, 11(1), 119–137. <https://doi.org/10.1177/1937586717730333>
- Gholami, M., Keshtvarz Hesam Abadi, A. M., Milady, S., & Gholami, M. (2020). A Systematic Review of the Factors Affecting the Growth of Medical Tourism in Iran. *International Journal of Travel Medicine and Global Health*, 8(1), 1–12. <https://doi.org/10.34172/ijtmgh.2020.01>
- Ghosh, T., & Mandal, S. (2019). Medical Tourism Experience: Conceptualization, Scale Development, and Validation. *Journal of Travel Research*, 58(8), 1288–1301. <https://doi.org/10.1177/0047287518813469>
- Gianfaldoni, S., Gianfaldoni, R., Wollina, U., Lotti, J., Tchernev, G., & Lotti, T. (2017). An overview on radiotherapy: From its history to its current applications in dermatology. *Open Access Macedonian Journal of Medical Sciences*, 5(4 Special Issue GlobalDermatology), 521–525. <https://doi.org/10.3889/oamjms.2017.122>
- Goenka, A. (2018). Spaces Designed to Heal. *Journal of Recent Activities in Architectural Sciences*, 3(2), 1–27. Retrieved from <https://www.researchgate.net/publication/346191862>
- Gola, M., Settimo, G., & Capolongo, S. (2020). Reaching Sustainability in Healthcare: Strategies for a Healthy Indoor Air Quality in Healing Environments. In L. Bevilacqua, C., Calabrò, F., Della Spina (Ed.), *New Metropolitan Perspectives 2020. Smart Innovation, Systems and Technologies* (Vol. 177, pp. 166–177). Springer, Cham.
- Gomes, S. R. (2022). *Territorial Organisation and Control in the Architecture and Urban Design of Gated Communities in Brazil* (The University of Auckland). Retrieved from <https://hdl.handle.net/2292/62189>
- Gopalan, N., Mohamed Noor, S. N., & Salim Mohamed, M. (2021). The Pro-Medical Tourism Stance of Malaysia and How it Affects Stem Cell Tourism Industry. *SAGE Open*, 11(2). <https://doi.org/10.1177/21582440211016837>
- Gordon, P. R., Gray, L., Hollingsworth, A., Shapiro, E. C., & Dalen, J. E. (2017). Opposition to Obamacare: A Closer Look. *Academic Medicine*, 92(9), 1241–1247. <https://doi.org/10.1097/ACM.0000000000001725>

- Gredičak, T., & Demonja, D. (2020). Potential directions of strategic development of medical tourism: The case of the Republic of Croatia. *Geographica Pannonica*, 24(1), 67–87. <https://doi.org/10.5937/GP24-21485>
- Gupta, A., & Tiwari, S. (2020). Designing Healing landscapes in Healthcare Facilities in Indian scenario. *International Conference on "Design for Health & Well-Being,"* (December). Retrieved from <https://www.researchgate.net/publication/347622869>
- Gupta, R. (2021). Color Therapy in Mental Health and Well Being. *International Journal of All Research Education and Scientific Methods (IJARESM)*, 9(2), 2455–6211.
- Hadian, M., Jabbari, A., Mousavi, S. H., & Sheikhbardsiri, H. (2021). Medical tourism development: A systematic review of economic aspects. *International Journal of Healthcare Management*, 14(2), 576–582. <https://doi.org/10.1080/20479700.2019.1677977>
- Hahn, N., Essah, E., & Blanusa, T. (2021). Biophilic design and office planting: a case study of effects on perceived health, well-being and performance metrics in the workplace. *Intelligent Buildings International*, 13(4), 241–260. <https://doi.org/10.1080/17508975.2020.1732859>
- Hakio, N., Rantanen, A., Åstedt-Kurki, P., & Suominen, T. (2015). Parents' experiences of family functioning, health and social support provided by nurses - A pilot study in paediatric intensive care. *Intensive and Critical Care Nursing*, 31(1), 29–37. <https://doi.org/10.1016/j.iccn.2014.08.001>
- Halawa, F., Madathil, S. C., Gittler, A., & Khasawneh, M. T. (2020). Advancing evidence-based healthcare facility design: a systematic literature review. *Health Care Management Science*, 23(3), 453–480. <https://doi.org/10.1007/s10729-020-09506-4>
- Hamed, S., El-Bassiouny, N., & Ternès, A. (2019). Hospital Servicescape Design for Inpatient Wellbeing. *Services Marketing Quarterly*, 40(1), 1–32. <https://doi.org/10.1080/15332969.2019.1587864>
- Hao, Y., Hu, Q., Tong, Y., Wu, J., Xu, Z., Ji, Y., & Yu, Z. (2020). Cooling Potential of Natural Ventilation for Passenger Stations in Southern China. In *Environmental Science and Engineering* (pp. 745–753). https://doi.org/10.1007/978-981-13-9520-8_77
- Haradhan, K. M. (2019). The First Industrial Revolution: Creation of a New Global Human Era. *Journal of Social Sciences and Humanities*, 5(4), 377–387.
- Hartwell, H., Fyall, A., Willis, C., Page, S., Ladkin, A., & Hemingway, A. (2018). Progress in tourism and destination wellbeing research. *Current Issues in Tourism*, 21(16), 1830–1892. <https://doi.org/10.1080/13683500.2016.1223609>

- Hassan, M. G., Razalli, M. R., & Musa, U. F. (2018). A review of the challenges and prospects for Islamic tourism policies in Malaysia. *Journal of Social Sciences Research*, 2018(Special Issue 6), 59–63. <https://doi.org/10.32861/jssr.spi6.59.63>
- Hassib, M., Braun, M., Pfleging, B., & Alt, F. (2019). Detecting and Influencing Driver Emotions Using Psycho-Physiological Sensors and Ambient Light. In *Human-Computer Interaction – INTERACT 2019*. (Vol. 11746, pp. 721–742). https://doi.org/10.1007/978-3-030-29381-9_43
- Hecht, H., Welsch, R., Viehoff, J., & Longo, M. R. (2019). The shape of personal space. *Acta Psychologica*, 193(January), 113–122. <https://doi.org/10.1016/j.actpsy.2018.12.009>
- Higuera-Trujillo, J. L., Llinares, C., & Macagno, E. (2021). The Cognitive-Emotional Design and Study of Architectural Space: A Scoping Review of Neuroarchitecture and Its Precursor Approaches. *Sensors*, 21(6), 2193. <https://doi.org/10.3390/s21062193>
- Hoang, T. G., Truong, N. T., & Nguyen, T. M. (2021). The survival of hotels during the COVID-19 pandemic: a critical case study in Vietnam. *Service Business*, 15(2), 209–229. <https://doi.org/10.1007/s11628-021-00441-0>
- Hoendervanger, J. G., Van Yperen, N. W., Mobach, M. P., & Albers, C. J. (2019). Perceived fit in activity-based work environments and its impact on satisfaction and performance. *Journal of Environmental Psychology*, 65(August), 101339. <https://doi.org/10.1016/j.jenvp.2019.101339>
- Honey, A., Hancock, N., Barton, R., Berry, B., Gilroy, J., Glover, H., ... Wells, K. (2023). How do Mental Health Services Foster Hope? Experience of People Accessing Services. *Community Mental Health Journal*, 59(5), 894–903. <https://doi.org/10.1007/s10597-022-01073-y>
- Huang, L., & Xu, H. (2018). Therapeutic landscapes and longevity: Wellness tourism in Bama. *Social Science and Medicine*, 197(June 2017), 24–32. <https://doi.org/10.1016/j.socscimed.2017.11.052>
- Iyendo, T. O., Uwajeh, P. C., & Ikenna, E. S. (2016). The therapeutic impacts of environmental design interventions on wellness in clinical settings: A narrative review. *Complementary Therapies in Clinical Practice*, 24, 174–188. <https://doi.org/10.1016/j.ctcp.2016.06.008>
- Jamshed, S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy*, 5(4), 87. <https://doi.org/10.4103/0976-0105.141942>
- Jamshidi, S., Parker, J. S., & Hashemi, S. (2020). The effects of environmental factors on the patient outcomes in hospital environments: A review of literature. *Frontiers of Architectural Research*, 9(2), 249–263. <https://doi.org/10.1016/j.foar.2019.10.001>

- Jensen, A., & Bonde, L. O. (2018). The use of arts interventions for mental health and wellbeing in health settings. *Perspectives in Public Health*, 138(4), 209–214. <https://doi.org/10.1177/1757913918772602>
- Jiang, S. (2015). *Encouraging engagement with therapeutic landscapes: Using transparent spaces to optimize stress reduction in urban health facilities*. (Clemson University). Retrieved from https://tigerprints.clemson.edu/all_dissertations/1495
- Jo, H. I., & Jeon, J. Y. (2020). The influence of human behavioral characteristics on soundscape perception in urban parks: Subjective and observational approaches. *Landscape and Urban Planning*, 203(July), 103890. <https://doi.org/10.1016/j.landurbplan.2020.103890>
- Junot, A., Paquet, Y., & Fenouillet, F. (2018). Place attachment influence on human well-being and general pro-environmental behaviors. *Journal of Theoretical Social Psychology*, 2(2), 49–57. <https://doi.org/10.1002/jts5.18>
- Karakas, T., & Yildiz, D. (2020). Exploring the influence of the built environment on human experience through a neuroscience approach: A systematic review. *Frontiers of Architectural Research*, 9(1), 236–247. <https://doi.org/10.1016/j.foar.2019.10.005>
- Karanikola, P., Andrea, V., Tampakis, S., & Tsolakidou, A. (2020). Indoor and outdoor design in healthcare environments: The employees' views in the general university hospital of alexandroupolis, Greece. *Environments*, 7(8), 1–18. <https://doi.org/10.3390/environments7080061>
- Kastenholz, E., Eusébio, C., & Figueiredo, E. (2015). Contributions of tourism to social inclusion of persons with disability. *Disability and Society*, 30(8), 1259–1281. <https://doi.org/10.1080/09687599.2015.1075868>
- Kattner, F., & Ellermeier, W. (2014). Irrelevant speech does not interfere with serial recall in early blind listeners. *Quarterly Journal of Experimental Psychology*, 67(11), 2207–2217. <https://doi.org/10.1080/17470218.2014.910537>
- Kayihan, K. S. (2018). Examination of Biophilia Phenomenon in the Context of Sustainable Architecture. In *Proceedings of 3rd International Sustainable Buildings Symposium (ISBS 2017). Lecture Notes in Civil Engineering* (Vol. 6, pp. 80–101). https://doi.org/10.1007/978-3-319-63709-9_7
- Kayukawa, S., Ishihara, T., Takagi, H., Morishima, S., & Asakawa, C. (2020). Guiding Blind Pedestrians in Public Spaces by Understanding Walking Behavior of Nearby Pedestrians. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 4(3). <https://doi.org/10.1145/3411825>
- Kellert, S. (2013). The Theory of Biophilic Design. In *Biophilic Design; The Theory, Science and Practice of Bringing Buildings to Life*. Retrieved from <https://www.wiley.com/en-us/Biophilic+Design:+The+Theory,+Science+and+Practice+of+Bringing+Bui>

- Khodeir, L. M., & Gamal, T. (2019). Approaches and Factors Affecting Healing Environment in Health Care Facilities for New Cities. In *New Cities and Community Extensions in Egypt and the Middle East* (pp. 257–273). https://doi.org/10.1007/978-3-319-77875-4_14
- Kim, H., Lee, S., Uysal, M., Kim, J., & Ahn, K. (2015). Nature-Based Tourism: Motivation and Subjective Well-Being. *Journal of Travel and Tourism Marketing*, 32(January 2016), S76–S96. <https://doi.org/10.1080/10548408.2014.997958>
- Kim, S. Y., Tuan, K. N., Lee, J. Do, Pham, H., & Luu, V. T. (2018). Cost overrun factor analysis for hospital projects in Vietnam. *KSCE Journal of Civil Engineering*, 22(1), 1–11. <https://doi.org/10.1007/s12205-017-0947-5>
- Kleist, N. J., Guralnick, R. P., Cruz, A., Lowry, C. A., & Francis, C. D. (2018). Chronic anthropogenic noise disrupts glucocorticoid signaling and has multiple effects on fitness in an avian community. *Proceedings of the National Academy of Sciences of the United States of America*, 115(4), E648–E657. <https://doi.org/10.1073/pnas.1709200115>
- Klímová, B., & Kuča, K. (2020). Medical tourism: Its research and implications for public health. *Central European Journal of Public Health*, 28(3), 226–229. <https://doi.org/10.21101/cejph.a5744>
- Knoop, M., Stefani, O., Bueno, B., Matusiak, B., Hobday, R., Wirz-Justice, A., ... Norton, B. (2020). Daylight: What makes the difference? *Lighting Research and Technology*, 52(3), 423–442. <https://doi.org/10.1177/1477153519869758>
- Kolaei, M. H., Mirzapour Al-e-Hashem, S. M. J., & Jabbarzadeh, A. (2023). A local search-based non-dominated sorting genetic algorithm for solving a multi-objective medical tourism trip design problem considering the attractiveness of trips. *Engineering Applications of Artificial Intelligence*, 124(May), 106630. <https://doi.org/10.1016/j.engappai.2023.106630>
- Koliopoulos, T. K., & Katsoni, V. (2019). The Innovative Health Tourism's Environmental Management Sustainable Design Facilities Assessment Capability. In *Springer Proceedings in Business and Economics* (pp. 79–87). https://doi.org/10.1007/978-3-030-03910-3_6
- Korpela, K. M., Pasanen, T., Repo, V., Hartig, T., Staats, H., Mason, M., ... Thompson, C. W. (2018). Environmental strategies of affect regulation and their associations with subjective well-being. *Frontiers in Psychology*, 9(APR), 1–15. <https://doi.org/10.3389/fpsyg.2018.00562>
- Kou, S., McClelland, A., & Furnham, A. (2018). The effect of background music and noise on the cognitive test performance of Chinese introverts and extraverts. *Psychology of Music*, 46(1), 125–135. <https://doi.org/10.1177/0305735617704300>

- KPJ Healthcare. (2022). *Integrated Annual Report 2022*. Retrieved from https://kpj.listedcompany.com/misc/KPJHB_IAR_2022.pdf
- Kyriakou, K., Resch, B., Sagl, G., Petutschnig, A., Werner, C., Niederseer, D., ... Pykett, J. (2019). Detecting moments of stress from measurements of wearable physiological sensors. *Sensors*, 19(17). <https://doi.org/10.3390/s19173805>
- Linebaugh, K. B. (2016). *A Systematic Literature Review of Healing Environments in the Inpatient Healthcare Setting In the Graduate College* (The University of Arizona). Retrieved from <http://hdl.handle.net/2374.MIA/6769>
- Liu, Y., Meng, H., Tu, N., & Liu, D. (2020). The Relationship Between Health Literacy, Social Support, Depression, and Frailty Among Community-Dwelling Older Patients With Hypertension and Diabetes in China. *Frontiers in Public Health*, 8(June), 1–11. <https://doi.org/10.3389/fpubh.2020.00280>
- Livingstone, S. (2008). Taking risky opportunities in youthful content creation: Teenagers' use of social networking sites for intimacy, privacy and self-expression. *New Media and Society*, 10(3), 393–411. <https://doi.org/10.1177/1461444808089415>
- Loupa, G. (2020). Influence of Noise on Patient Recovery. *Current Pollution Reports*, 6(1). <https://doi.org/10.1007/s40726-019-00134-3>
- Lubos, L. C. (2008). The Role of Colors in Stress Reduction. *Liceo Journal of Higher Education Research*, 5(2). <https://doi.org/10.7828/ljher.v5i2.39>
- Lumber, R., Richardson, M., & Albertsen, J.-A. (2018). HFE in Biophilic Design: Human Connections with Nature. In *Ergonomics and Human Factors for a Sustainable Future* (pp. 161–190). https://doi.org/10.1007/978-981-10-8072-2_7
- Lundin, S. (2020). Can Healing Architecture Increase Safety in the Design of Psychiatric Wards? *HERD: Health Environments Research & Design Journal*, 14(1), 106–117. <https://doi.org/10.1177/1937586720971814>
- Lunt, N., Smith, R., Exworthy, M., Stephen, T., Horsfall, D., & Mannion, R. (2011). Medical Tourism: Treatments, Markets and Health System Implications: scoping review. *Directorate for Employment, Labour and Social Affairs*, 1–55. Retrieved from <https://www.oecd.org/els/health-systems/48723982.pdf>
- Luong, T. B. (2023). Eco-destination image, environment beliefs, ecotourism attitudes, and ecotourism intention: The moderating role of biospheric values. *Journal of Hospitality and Tourism Management*, 57(November), 315–326. <https://doi.org/10.1016/j.jhtm.2023.11.002>
- MAH. (2020). Clarification on Hotels as Quarantine Centres. Retrieved from Malaysian Association of Hotels website: <https://www.hotels.org.my/press/04691-clarification-on-hotels-as-quarantine-centres-mah-is-working-closely-with-motac-coordinating-hotels-turned-quarantine-c>

- Mahmoud, A. M. (2018). The Impact of built Environment on human Behaviors. *The International Journal of Environmental Science & Sustainable Development*, 2(1), 1–12. <https://doi.org/10.21625/essd.v2i1.157.g69>
- Malchrowicz-Moško, E., & Poczta, J. (2018). A small-scale event and a big impact-Is this relationship possible in the world of sport? The meaning of heritage sporting events for sustainable development of tourism-experiences from Poland. *Sustainability*, 10(11), 1–19. <https://doi.org/10.3390/su10114289>
- Marques, B., McIntosh, J., & Kershaw, C. (2021). Therapeutic environments as a catalyst for health, well-being and social equity. *Landscape Research*, 46(6), 766–781. <https://doi.org/10.1080/01426397.2021.1906851>
- Marselle, M. R. (2019). Theoretical Foundations of Biodiversity and Mental Well-being Relationships. In *Biodiversity and Health in the Face of Climate Change* (pp. 133–158). https://doi.org/10.1007/978-3-030-02318-8_7
- Mary J, S. (2019). Day lighting in Healing Spaces. *International Journal of Scientific Research in Science, Engineering and Technology*, 6(1), 78–89. <https://doi.org/10.32628/ijrsrset21841136>
- McCabe, S., & Qiao, G. (2020). A review of research into social tourism: Launching the Annals of Tourism Research Curated Collection on Social Tourism. *Annals of Tourism Research*, 85(September), 103103. <https://doi.org/10.1016/j.annals.2020.103103>
- McIntosh, J., Marques, B., Cornwall, J., Kershaw, C., & Mwipiko, R. (2021). Therapeutic Environments and the Role of Physiological Factors in Creating Inclusive Psychological and Socio-Cultural Landscapes. *Ageing International*, 47(3), 433–446. <https://doi.org/10.1007/s12126-021-09452-8>
- McPhie, J. (2019). Mental Health and Wellbeing in the Anthropocene. In *Mental Health and Wellbeing in the Anthropocene* (pp. 115–139). <https://doi.org/10.1007/978-981-13-3326-2>
- Meng, C. K., Piaralal, S. K., Islam, M. A., Yusof, M. F. Bin, & Chowdhury, R. S. (2023). International medical Tourists' expectations and behavioral intention towards health resorts in Malaysia. *Heliyon*, 9(9), e19721. <https://doi.org/10.1016/j.heliyon.2023.e19721>
- MHTC. (2019). RM1.8 billion industry. Get 'benefits' from it! Malaysia Healthcare Travel Council. Retrieved from <https://www.mhtc.org.my/2019/03/24/rm1-8-billion-industry-get-benefits-from-it/>
- Michopoulou, E., Darcy, S., Ambrose, I., & Buhalis, D. (2015). Accessible tourism futures: the world we dream to live in and the opportunities we hope to have. *Journal of Tourism Futures*, 1(3), 179–188. <https://doi.org/10.1108/JTF-08-2015-0043>

- Moghavvemi, S., Ormond, M., Musa, G., Mohamed Isa, C. R., Thirumoorthi, T., Bin Mustapha, M. Z., ... Chiremel Chandy, J. J. (2017). Connecting with prospective medical tourists online: A cross-sectional analysis of private hospital websites promoting medical tourism in India, Malaysia and Thailand. *Tourism Management*, 58, 154–163. <https://doi.org/10.1016/j.tourman.2016.10.010>
- Mohd-Any, A. A., & Mahdzan, N. S. (2017). Case Study 11: Prince Court Medical Centre (PCMC): The Hospital with a 5-Star Hotel-Like Experience and Beyond. In *Services Marketing Cases in Emerging Markets* (pp. 137–147). https://doi.org/10.1007/978-3-319-32970-3_14
- Mohd Isa, S., Lim, G. S. S., & Chin, P. N. (2019). Patients' intent to revisit with trust as the mediating role: lessons from Penang Malaysia. *International Journal of Pharmaceutical and Healthcare Marketing*, 13(2), 140–159. <https://doi.org/10.1108/IJPHM-10-2017-0056>
- Mossabir, R., Milligan, C., & Froggatt, K. (2021). Therapeutic landscape experiences of everyday geographies within the wider community: A scoping review. *Social Science and Medicine*, 279, 113980. <https://doi.org/10.1016/j.socscimed.2021.113980>
- Mughal, H., & Beirão, J. N. (2020). Potential of Natural Ventilation and Vegetation for Achieving Low-Energy Tall Buildings in Tropical Climate: An Overview. *Lecture Notes in Mechanical Engineering*, 110–116. https://doi.org/10.1007/978-3-030-29041-2_14
- Mujan, I., Anđelković, A. S., Munćan, V., Kljajić, M., & Ružić, D. (2019). Influence of indoor environmental quality on human health and productivity - A review. *Journal of Cleaner Production*, 217, 646–657. <https://doi.org/10.1016/j.jclepro.2019.01.307>
- Mukred, M., Yusof, Z. M., Alotaibi, F. M., Mokhtar, U. A., & Fauzi, F. (2019). The Key Factors in Adopting an Electronic Records Management System (ERMS) in the Educational Sector: A UTAUT-Based Framework. *IEEE Access*, 7, 35963–35980. <https://doi.org/10.1109/ACCESS.2019.2904617>
- Munro, K., & Grierson, D. (2018). Nature, People and Place: Informing the Design of Urban Environments in Harmony with Nature Through the Space/Nature Syntax. *World Sustainability Series*, 105–125. https://doi.org/10.1007/978-3-319-69474-0_6
- Murnane, E. L., Walker, T. G., Tench, B., Volda, S., & Snyder, J. (2018). Personal informatics in interpersonal contexts: Towards the design of technology that supports the social ecologies of long-term mental health management. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW). <https://doi.org/10.1145/3274396>
- Murphy, E., & King, E. A. (2022). Environmental Noise and Health. In *Environmental Noise Pollution* (pp. 53–84). <https://doi.org/10.1016/B978-0-12-820100-0>

- Na, S. A., Onn, C. Y., & Meng, C. L. (2016). Travel Intentions among Foreign Tourists for Medical Treatment in Malaysia: An Empirical Study. *Procedia - Social and Behavioral Sciences*, 224(August 2015), 546–553. <https://doi.org/10.1016/j.sbspro.2016.05.434>
- Nagare, R., Woo, M., Macnaughton, P., Plitnick, B., Tinianov, B., & Figueiro, M. (2021). Article access to daylight at home improves circadian alignment, sleep, and mental health in healthy adults: A crossover study. *International Journal of Environmental Research and Public Health*, 18(19). <https://doi.org/10.3390/ijerph18199980>
- Narayanan, S., & Wah, L. Y. (2021). Medical tourism in malaysia: Growth, contributions and challenges. *Thailand and the World Economy*, 39(1), 1–22.
- Nazem, G., Ahmadi, N., & Doust, S. (2017). Exploring medicaltourist experiences at the private hospital in Malaysia: what could be improved? *Geografia: Malaysian Journal of Society & Space*, 13(2), 26–32.
- Ngah, A. H., Ramayah, T., Ali, M. H., & Khan, M. I. (2020). Halal transportation adoption among pharmaceuticals and comestics manufacturers. *Journal of Islamic Marketing*, 11(6), 1619–1639. <https://doi.org/10.1108/JIMA-10-2018-0193>
- NIH. (2021). *National Institution of Health (NIH) Guidelines for Conducting Research in Ministry of Health (MOH) Institution and Facilities*. Retrieved from https://nih.gov.my/images/media/publication/guidelines/NIH_Guideline_2021.pdf
- Nilashi, M., Samad, S., Manaf, A. A., Ahmadi, H., Rashid, T. A., Munshi, A., ... Hassan Ahmed, O. (2019). Factors influencing medical tourism adoption in Malaysia: A DEMATEL-Fuzzy TOPSIS approach. *Computers and Industrial Engineering*, 137(August), 106005. <https://doi.org/10.1016/j.cie.2019.106005>
- Nygaard, A., Halvorsrud, L., Grov, E. K., & Bergland, A. (2022). ‘What matters to you?’—a qualitative study on the views of nursing home residents with dementia regarding the health care they receive. *Journal of Clinical Nursing*, 31(1–2), 262–274. <https://doi.org/10.1111/jocn.15904>
- Ordoubadi, M. S., Tabatabaeian, M., & Farkhondehfal, E. (2023). Communication Apprehension, Privacy Preferences and L2 Willingness to Communicate: Can They Predict Communication Ability? *Journal of Business, Communication & Technology*, 39–53. <https://doi.org/10.56632/bct.2023.2204>
- Park, M., Giap, T. T. T., Lee, M., Jeong, H., Jeong, M., & Go, Y. (2018). Patient- and family-centered care interventions for improving the quality of health care: A review of systematic reviews. *International Journal of Nursing Studies*, 87(January), 69–83. <https://doi.org/10.1016/j.ijnurstu.2018.07.006>

- Park, S. H., Lee, P. J., Lee, B. K., Roskams, M., & Haynes, B. P. (2020). Associations between job satisfaction, job characteristics, and acoustic environment in open-plan offices. *Applied Acoustics*, 168, 107425. <https://doi.org/10.1016/j.apacoust.2020.107425>
- Parvin, F., Ali, S. A., Hashmi, S. N. I., & Khatoon, A. (2021). Accessibility and site suitability for healthcare services using GIS-based hybrid decision-making approach: a study in Murshidabad, India. *Spatial Information Research*, 29(1). <https://doi.org/10.1007/s41324-020-00330-0>
- Pemayun, A. A. G. P., & Suderana, I. W. (2019). Shifting social and economic structural community: rapid development of tourism sector. *International Journal of Social Sciences and Humanities*, 3(1), 115–124. <https://doi.org/10.29332/ijssh.v3n1.271>
- Peng, J., Strijker, D., & Wu, Q. (2020). Place Identity: How Far Have We Come in Exploring Its Meanings? *Frontiers in Psychology*, 11(March), 1–19. <https://doi.org/10.3389/fpsyg.2020.00294>
- Perović, S. K., & Krklješ, M. (2017). Transdisciplinary approach to design of a total healing environment. In *Understanding Complex Systems* (pp. 71–86). https://doi.org/10.1007/978-3-319-55774-8_3
- Pilcher, N., & Cortazzi, M. (2023). “Qualitative” and “quantitative” methods and approaches across subject fields: implications for research values, assumptions, and practices. In *Quality and Quantity*. <https://doi.org/10.1007/s11135-023-01734-4>
- Pinter-Wollman, N., Jelic, A., & Wells, N. M. (2018). The impact of the built environment on health behaviours and disease transmission in social systems. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 373(1753). <https://doi.org/10.1098/rstb.2017.0245>
- Poretski, L., Lanir, J., & Arazy, O. (2018). Normative tensions in shared augmented reality. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 1–22. <https://doi.org/10.1145/3274411>
- Quirke, M., Bennett, K., Chau, H.-W., Preece, T., & Jamei, E. (2023). Environmental Design for People Living with Dementia. *Encyclopedia*, 3(3), 1038–1057. <https://doi.org/10.3390/encyclopedia3030076>
- Rahman, M. K. (2019). Medical tourism: tourists’ perceived services and satisfaction lessons from Malaysian hospitals. *Tourism Review*, 74(3), 739–758. <https://doi.org/10.1108/TR-01-2018-0006>
- Rai, A. (2019). *Medical Tourism in Kolkata, Eastern India*. https://doi.org/https://doi.org/10.1007/978-3-319-73272-5_1

- Ratnasari, R. T., Gunawan, S., Pitchay, A. A., & Mohd Salleh, M. C. (2022). Sustainable medical tourism: Investigating health-care travel in Indonesia and Malaysia. *International Journal of Healthcare Management*, 15(3), 220–229. <https://doi.org/10.1080/20479700.2020.1870365>
- Riboulot-Chetrit, M., Simon, L., & Raymond, R. (2018). Making Space for Disorder in the Garden: Developing Biophilia to Conciliate Aesthetics and Biodiversity. In *The Urban Garden City : Shaping the City with Gardens Through History* (pp. 165–184). https://doi.org/10.1007/978-3-319-72733-2_9
- Risman, B. J. (2018). Gender as a Social Structure. In *Handbooks of Sociology and Social Research* (pp. 19–43). https://doi.org/10.1007/978-3-319-76333-0_2
- Ritpanitchajchaval, N., Ashton, A. S., & Apollo, M. (2023). Eudaimonic well-being development: Motives driving mountain-based adventure tourism. *Journal of Outdoor Recreation and Tourism*, 42(February), 100607. <https://doi.org/10.1016/j.jort.2023.100607>
- Ruiz-Tagle, J., & Urria, I. (2022). Household overcrowding trajectories and mental well-being. *Social Science and Medicine*, 296(May 2021), 114051. <https://doi.org/10.1016/j.socscimed.2021.114051>
- Salonen, H., Lahtinen, M., Lappalainen, S., Nevala, N., Knibbs, L. D., Morawska, L., & Reijula, K. (2013). Physical characteristics of the indoor environment that affect health and wellbeing in healthcare facilities: a review. *Intelligent Buildings International*, 5(1), 3–25. <https://doi.org/10.1080/17508975.2013.764838>
- Samal, R., & Dash, M. (2023). Ecotourism, biodiversity conservation and livelihoods: Understanding the convergence and divergence. *International Journal of Geoheritage and Parks*, 11(1), 1–20. <https://doi.org/10.1016/j.ijgeop.2022.11.001>
- Sani, N. A. A., & Isa, M. H. B. M. (2021). A Study on Spatial Healing Environment for Post-traumatic Stress Disorder. In *Advances in Civil Engineering Material: Vol. 139 LNCE* (pp. 101–107). https://doi.org/10.1007/978-981-33-6560-5_11
- Savavibool, N. (2020). Effects of color schemes on aesthetic response of the work environment. *Kasetsart Journal of Social Sciences*, 41(3), 581–586. <https://doi.org/10.34044/j.kjss.2020.41.3.20>
- Scott, T. L., Masser, B. M., & Pachana, N. A. (2015). Exploring the health and wellbeing benefits of gardening for older adults. *Ageing and Society*, 35(10), 2176–2200. <https://doi.org/10.1017/S0144686X14000865>
- Setti, W., Cuturi, L. F., Cocchi, E., & Gori, M. (2018). A novel paradigm to study spatial memory skills in blind individuals through the auditory modality. *Scientific Reports*, 8(1), 1–10. <https://doi.org/10.1038/s41598-018-31588-y>

- Shaleh, R. I. (2020). The Public Health Campaign: A Literature Review from the Point of Use of Media and Communication in Malaysia. *International Journal of Science and Society*, 2(4), 133–146. <https://doi.org/10.54783/ijssoc.v2i4.199>
- Siamionava, K., Slevitch, L., & Tomas, S. R. (2018). Effects of spatial colors on guests' perceptions of a hotel room. *International Journal of Hospitality Management*, 70(October 2017), 85–94. <https://doi.org/10.1016/j.ijhm.2017.10.025>
- Siew, R. V. K., Nabe-Nielsen, K., Turner, A. I., Bujtor, M., & Torres, S. J. (2022). The role of combined modifiable lifestyle behaviors in the association between exposure to stressors and allostatic load: A systematic review of observational studies. *Psychoneuroendocrinology*, 138(December 2021), 105668. <https://doi.org/10.1016/j.psyneuen.2022.105668>
- Sigalingging, P., Ismanto, R., & Sudarwani, M. M. (2021). The application of healing architecture and green architecture in hospital for children. *IOP Conference Series: Earth and Environmental Science*, 878(1), 012013. <https://doi.org/10.1088/1755-1315/878/1/012013>
- Singh, J., Gill, Y., & Mittra, R. (2020). Psychology in environmental studies. In *Transdisciplinary Environmental Issues* (pp. 119–130). Retrieved from https://www.researchgate.net/publication/346651974_PSYCHOLOGY_IN_ENVIRONMENTAL_STUDIES
- Singh, L. (2019). Medical Tourism Motivations: The Driving Force. *Journal of Multidisciplinary Academic Tourism*, 4(2), 77–86. <https://doi.org/10.31822/jomat.621874>
- Sisto, R., Cappelletti, G. M., Bianchi, P., & Sica, E. (2022). Sustainable and accessible tourism in natural areas: a participatory approach. *Current Issues in Tourism*, 25(8), 1307–1324. <https://doi.org/10.1080/13683500.2021.1920002>
- Skevington, S. M., Emsley, R., Dehner, S., Walker, I., & Reynolds, S. E. (2019). Does Subjective Health Affect the Association between Biodiversity and Quality of Life? Insights from International Data. *Applied Research in Quality of Life*, 14(5), 1315–1331. <https://doi.org/10.1007/s11482-018-9649-5>
- Small, J. (2015). Interconnecting mobilities on tour: tourists with vision impairment partnered with sighted tourists. *Tourism Geographies*, 17(1), 76–90. <https://doi.org/10.1080/14616688.2014.938690>
- Söderlund, J. (2019). Biophilic Design: The Stories of the Pioneers of the Social Movement. In *Cities and Nature* (pp. 35–141). https://doi.org/10.1007/978-3-030-29813-5_3
- Song, S., Suess, C., Mody, M. A., & Dogru, T. (2021). Comparing the influence of substantive and communicative servicescape on healthcare traveler emotions: the moderating effect of accommodation type and interior design style. *International Journal of Contemporary Hospitality Management*, 33(1), 1–26. <https://doi.org/10.1108/IJCHM-12-2019-1022>

- Song, Y., Su, Z.-W., Tao, R., & Umut, A. (2022). Revealing the Effectiveness of Tourism Development on Health in Asian Economies. *Frontiers in Public Health*, 10(April), 1–7. <https://doi.org/10.3389/fpubh.2022.895221>
- Spiegel, T. J. (2023). Why Naturalism cannot (Merely) be an Attitude. *Topoi*, 42(3), 745–752. <https://doi.org/10.1007/s11245-022-09846-6>
- Steg, L., van den Berg, A. E., & de Groot, J. I. M. (2018). Environmental Psychology. In *Environmental Psychology* (pp. 1–11). <https://doi.org/10.1002/9781119241072.ch1>
- Steidle, A., & Werth, L. (2013). Freedom from constraints: Darkness and dim illumination promote creativity. *Journal of Environmental Psychology*, 35, 67–80. <https://doi.org/10.1016/j.jenvp.2013.05.003>
- Steinmetz-Wood, M., Pluye, P., & Ross, N. A. (2019). The planning and reporting of mixed methods studies on the built environment and health. *Preventive Medicine*, 126(June), 105752. <https://doi.org/10.1016/j.ypmed.2019.105752>
- Stevens, H. R., Beggs, P. J., Graham, P. L., & Chang, H. C. (2019). Hot and bothered? Associations between temperature and crime in Australia. *International Journal of Biometeorology*, 63(6), 747–762. <https://doi.org/10.1007/s00484-019-01689-y>
- Suess, C., Baloglu, S., & Busser, J. A. (2018). Perceived impacts of medical tourism development on community wellbeing. *Tourism Management*, 69(November 2014), 232–245. <https://doi.org/10.1016/j.tourman.2018.06.006>
- Tähkämö, L., Partonen, T., & Pesonen, A. K. (2019). Systematic review of light exposure impact on human circadian rhythm. *Chronobiology International*, 36(2), 151–170. <https://doi.org/10.1080/07420528.2018.1527773>
- Tan, C. N. L., Ojo, A. O., Cheah, J. H., & Ramayah, T. (2019). Measuring the influence of service quality on patient satisfaction in Malaysia. *Quality Management Journal*, 26(3), 129–143. <https://doi.org/10.1080/10686967.2019.1615852>
- Tao, Y., Chai, Y., Kou, L., & Kwan, M. P. (2020). Understanding noise exposure, noise annoyance, and psychological stress: Incorporating individual mobility and the temporality of the exposure-effect relationship. *Applied Geography*, 125(February), 102283. <https://doi.org/10.1016/j.apgeog.2020.102283>
- Thompson, R., Smith, R. B., Bou Karim, Y., Shen, C., Drummond, K., Teng, C., & Toledano, M. B. (2022). Noise pollution and human cognition: An updated systematic review and meta-analysis of recent evidence. *Environment International*, 158(September 2021), 106905. <https://doi.org/10.1016/j.envint.2021.106905>
- Tourism Malaysia. (2023). Number of domestic tourism trips in Malaysia from 2013 to 2022. Retrieved from <https://www.statista.com/statistics/875552/number-of-domestic-tourism-trips-malaysia/>

- Uchino, B. N., & Rook, K. S. (2020). Emotions, relationships, health and illness into old age. *Maturitas*, 139(May), 42–48. <https://doi.org/10.1016/j.maturitas.2020.05.014>
- Ulrich, R. (2002). Health Benefits of Gardens in Hospitals. *Paper for Conference: Plants for People. International Exhibition Floriade*, (January 2002), 1–10. Retrieved from http://www.plantsatwork.org/pdf/HealthSettingsUlrich_copy.pdf
- Ulrich, R. S. (2008). Biophilic theory and research for healthcare design Design Guidelines View project Healthcare Architecture View project. *Chalmers University of Technology*, (August), 87–106. Retrieved from <https://www.researchgate.net/publication/285328585>
- UNWTO. (2015). Tourism and the Sustainable Development Goals. Retrieved from Tourism and the Sustainable Development Goals website: <https://www.e-unwto.org/doi/pdf/10.18111/9789284417254>
- Uysal, M., Sirgy, M. J., Woo, E., & Kim, H. L. (2016). Quality of life (QOL) and well-being research in tourism. *Tourism Management*, 53, 244–261. <https://doi.org/10.1016/j.tourman.2015.07.013>
- Verderber, S., Gray, S., Suresh-Kumar, S., Kercz, D., & Parshuram, C. (2021). Intensive Care Unit Built Environments: A Comprehensive Literature Review (2005–2020). *Health Environments Research and Design Journal*, 14(4), 368–415. <https://doi.org/10.1177/19375867211009273>
- Wan Mohd Annuar, W. S. H., Pien, L. S., & Makhtar, A. (2021). Parents' experiences of caring for their child in a Paediatric Intensive Care Unit: A literature review. *Enfermeria Clinica*, 31, S377–S380. <https://doi.org/10.1016/j.enfcli.2020.09.029>
- Wang, I. M., & Ackerman, J. M. (2019). The Infectiousness of Crowds: Crowding Experiences Are Amplified by Pathogen Threats. *Personality and Social Psychology Bulletin*, 45(1), 120–132. <https://doi.org/10.1177/0146167218780735>
- Wang, M. Y., Li, Y. Q., Ruan, W. Q., Zhang, S. N., & Li, R. (2023). Cultural inheritance-based innovation at heritage tourism destinations: Conceptualization, structural dimensions and scale development. *Journal of Hospitality and Tourism Management*, 55(February), 118–130. <https://doi.org/10.1016/j.jhtm.2023.03.009>
- Wei, J. W. H., Wan, N. C., & Tin, S. (2019). Malaysia's Rural Health Development: Foundation of Universal Health Coverage (UHC). *Jurnal Sains Kesihatan Malaysia*, 17(01), 31–41. <https://doi.org/10.17576/jskm-2019-1701-05>
- WHO. (2021). WHO's work on the UN Decade of Healthy Ageing (2021–2030). Retrieved from World Health Organization website: <https://www.who.int/initiatives/decade-of-healthy-ageing>

- Wright, D. W. M., & Zascerinska, S. (2023). Becoming immortal: future wellness and medical tourism markets. *Journal of Tourism Futures*, 9(2), 168–195. <https://doi.org/10.1108/JTF-05-2021-0119>
- Xia, G., Henry, P., Queiroz, F., & Westland, S. (2021). Effects of coloured lighting in the real world environment and virtual reality. *Journal of the International Colour Association*, 27, 9–25. Retrieved from www.aic-color.org/
- Yan, Y., Su, H., & Jia, Y. (2023). Modeling and Analysis of Human Comfort in Human–Robot Collaboration. *Biomimetics*, 8(6). <https://doi.org/10.3390/biomimetics8060464>
- Yang, W., & Moon, H. J. (2019). Combined effects of acoustic, thermal, and illumination conditions on the comfort of discrete senses and overall indoor environment. *Building and Environment*, 148(December 2018), 623–633. <https://doi.org/10.1016/j.buildenv.2018.11.040>
- Yin, J., Ji, Y., Huang, P., & Ni, Y. (2023). Fatigue or satisfaction at crowded attractions? *Current Psychology*, 42(36), 32588–32599. <https://doi.org/10.1007/s12144-023-04263-3>
- Zadeh, R. S., Eshelman, P., Setla, J., Kennedy, L., Hon, E., & Basara, A. (2018). Environmental Design for End-of-Life Care: An Integrative Review on Improving the Quality of Life and Managing Symptoms for Patients in Institutional Settings. *Journal of Pain and Symptom Management*, 55(3), 1018–1034. <https://doi.org/10.1016/j.jpainsymman.2017.09.011>
- Zajadacz, A. (2015). Evolution of models of disability as a basis for further policy changes in accessible tourism. *Journal of Tourism Futures*, 1(3), 189–202. <https://doi.org/10.1108/JTF-04-2015-0015>
- Zhang, X. (2018). Application of discrete event simulation in health care: A systematic review. *BMC Health Services Research*, 18(1), 1–11. <https://doi.org/10.1186/s12913-018-3456-4>