THE IMPACT OF SALUTOGENIC DESIGN ON PERCEIVED ENVIRONMENTAL QUALITY AND MOOD IN HEALTHCARE ENVIRONMENTS: A COMPARATIVE CASE STUDY IN DENTAL CLINICS

A Master's Thesis

by

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Ankara

May 2022

To my parents,

Neşe Viki & Can

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The Graduate School of Economics and Social Science
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by

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By Işıl Özgön

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Fine Arts in Interior Architecture and Environmental Design.

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Yasemin Afacan

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Andre Santos Nouri

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ABSTRACT

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This thesis systematically analyzed the effect of biophilic design as a salutogenic design method on improving a patient's perceived environmental quality and mood in dental clinic waiting rooms. For this purpose, five experts evaluated potential dental clinic waiting rooms based on their biophilic scores

and selected two dental clinics to compare their waiting rooms. One hundred four patients perceived environmental quality and mood were assessed while they were waiting for their treatment in the waiting room of the two clinics. According to the results, the patients' perceived environmental quality was greater in the waiting area with a higher biophilic score. The patients' mood scores, on the other hand, did not show any significant differences across the clinics. The outcomes of this thesis lead to a better understanding of how to incorporate salutogenic design features into dental clinic waiting rooms to enhance the patient experience.

Keywords: Biophilic Design, Dental Clinic, Mood**,** Perceived Environmental Quality, Salutogenic Design

ÖZET

SALUTOJENİK TASARIMIN SAĞLIK ORTAMLARINDA ALGILANAN ÇEVRE KALİTESİ VE RUH HALİ ÜZERİNDEKİ ETKİSİ: DİŞ KLİNİKLERİNDE KARŞILAŞTIRMALI BİR VAKA ÇALIŞMASI

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Mayıs 2022

Bu çalışma, bir salutojenik tasarım yöntemi olarak biyofilik tasarımın, diş kliniği bekleme odalarında hastanın algılanan çevre kalitesini ve ruh halini iyileştirme üzerindeki etkisini sistematik olarak analiz etmiştir. Bu amaçla beş uzman, potansiyel diş kliniği bekleme odalarını biyofilik puanlarına göre değerlendirmiş

ve karşılaştırmak için iki diş kliniği seçmiştir. Her iki kliniğin bekleme odasında tedavilerini bekleyen yüz dört hastanın algıladıkları çevresel kalite ve ruh hali değerlendirilmiştir. Elde edilen sonuçlara göre, hastaların biyofilik puanı yüksek olan bekleme odasındaki algıladıkları çevre kalitesi daha yüksek çıkmıştır. Hastaların ruh hali puanları ise klinikler arasında anlamlı bir farklılık göstermemiştir. Araştırma sonuçları, hasta deneyimini geliştirmek için salutojenik tasarım özelliklerinin diş kliniği bekleme odalarına nasıl dahil edileceğinin daha iyi anlaşılmasını sağlamıştır.

Anahtar Kelime: Algılanan çevre kalitesi, Biyofilik Tasarım, Diş Kliniği, Ruh Hali, Salutojenik Tasarım

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Last but not least, I would like to express my appreciation to my parents, Can and Neşe Viki Özgön, as well as my sister Sinem Meneses and niece Liat, for their ongoing love and support during this process. This thesis is dedicated to them. I would not be where I am now if it weren't for their encouragement and sacrifices. Additionally, I want to express my appreciation to my dearest friend, Müge Sarıgöl, for her unwavering support, assistance, and friendship.

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LIST OF ABBREVIATIONS

ART	Attention Restoration Theory
GRR	Generalized Resistance Resources
PEQI	Perceived Environmental Quality Index
POMS	Profile of Mood States
SRR	Specific Resistance Resources
TMD	Total Mood Disturbance
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

1.1. Problem Statement

People spend more than 90% of their time in built environments that affect their emotions, behaviors, and motivation (Evans, 2003). According to the World Health Organization (WHO) (2001), the physical environment is a critical component of quality healthcare (Colley & Zeeman, 2020). Healthcare facilities were traditionally constructed with a priority on the efficient delivery of healthcare services with functionality (Dinis et al., 2013; Tanja-Dijkstra & Andrade, 2018). As a result, a visit to the healthcare environment is a stressful event for the majority of people (Arneill & Devlin, 2002). This is an issue that is regularly faced especially in dental clinics. People are hesitant to use dental services because they have had excessive negative emotional reactions to certain treatments or the environment of dental care (Devapriya, 2016; Ling-Hsin & Yu-Hsiang, 2019).

A growing population with changing requirements has led to an increased recognition among healthcare managers and medical practitioners of the urgent need to improve healthcare facility design for the health, healing, and wellbeing of patients (Salonen et al., 2013a). Creating a well-designed built environment has a good impact on our society's social, psychological, and behavioral patterns. A new way of looking at the built environment in terms of health and wellbeing is salutogenic design (Karaca, 2018).

Salutogenic design is based on Aaron Antonovsky's 'Salutogenesis' idea, which he created in 1979. The phrase translates to 'health origins' which identifies as a strategy that focuses on elements that promote human health and wellbeing rather than ones that cause sickness (Mazuch, 2017). More precisely, the salutogenic model investigates the connection between health, stress, and coping capacity (Uwajeh & Ezennia, 2019). After that Alan Dilani developed the term "salutogenic design," which is centered on encouraging wellness elements in hospital design to provide a restorative environment for patients (Abdelaal & Soebarto, 2019). Another term, “Biophilia” was first used by Dr. Erich Fromm and he described it as the love of life. Later, Stephen R. Kellert proposed the design method, “biophilic design”, which refers to the incorporation of natural elements and processes into an indoor environment to create more sustainable settings (Emamjomeh, Zhu, & Beck, 2020). The premise of biophilic design is that being exposed to natural environments and characteristics has a positive impact on human health and wellbeing.

Therefore, using biophilic design as a salutogenic method in healthcare environments, as in this thesis, especially in dental clinics, can be beneficial for patients experiencing anxiety or negative emotions. There is a gap in the literature in the sense that, how different levels of salutogenic and biophilic design interpretations affect the perceived environmental quality and positive mood of patients.

1.2. Aim of the Study

This thesis aims to analyze the effect of biophilic design as a salutogenic design method on improving a patient's perceived environmental quality and mood in dental clinic waiting rooms. This thesis achieves this aim by comparing the perceived environmental quality and moods of patients in two different dentist waiting areas that have complete opposite biophilic scores, measured by experts. The following are the objectives of this thesis under this framework:

- Analyzing the effect of biophilic design as a salutogenic design method on improving patients' perceived environmental quality.
- Analyzing the effect of biophilic design as a salutogenic design method on patient's positive mood.
- Identifying the relationship between the perceived environmental quality and positive mood in dental clinic waiting rooms

1.3. Structure of the Thesis

To achieve the study's objectives, Chapter 2 conducts a literature review on healthcare environments, dental clinics, salutogenic design, and biophilic design. The methodology of the study is presented in Chapter 3. It provides the research questions and hypotheses. The study's setting is then described to present the clinics where the data was gathered. After that, the procedure of the thesis is presented in three phases. Lastly, instrumentation and data collection were explained. Chapter 4 represents the quantitative data analysis methods and results. Chapter 5 discusses the findings and compares them with previous literature. Finally, Chapter 6 is the conclusion, in which the key points of the thesis are summarized, as well as the limitations and future suggestions.

CHAPTER 2

LITERATURE REVIEW

2.1. Healthcare Environments

The built environment includes various spaces, such as; workplace (Davis, 1984), school, residential (Gifford, Steg, & Reser, 2011), healthcare (Codinhoto, Tzortzopoulos, Kagioglou, Aouad, & Cooper, 2009), and urban (Ewing, 2005) environments. People spend a significant amount of time in these built environments and these environments have an impact on them (Karaca, 2018). Each built environment affects people differently; workplace environments influence productivity and satisfaction (Gifford et al., 2011), school environments influence students' behaviors and attitudes (Weinstein, 1979), healthcare environments can enhance the healing process (Codinhoto et al., 2009), and the urban environments can affect the walkability (Agampatian, 2014). The environment which we live in, the shape of buildings, colors, lighting, materials, and a variety of other features in the built environment all have the potential to

impact people positively or negatively (Fischl, 2006). The influence of the physical environment is determined by a person's appraisal of the environment. Here, appraisal refers to an individual's subjective assessment of their surroundings in terms of quality (Leather, Beale, Santos, Watts, & Lee, 2003) which affects mood, health, and wellbeing (Dilani, 2015; Fischl, 2006; Yin et al., 2020). The quality of the physical environment also influences the relationship between physical environment elements and satisfaction, and overall satisfaction is considered to be derived from environmental satisfaction (Andrade, Lima, Pereira, Fornara, & Bonaiuto, 2013). As a result, there is a growing interest in understanding the impact of the design of built environments (Karaca, 2018).

According to the WHO (2001), the physical environment is a critical component of quality healthcare (Colley & Zeeman, 2020). Healthcare facilities were traditionally constructed with a priority on the efficient delivery of healthcare services with functionality and sterilization issues primarily (Dinis et al., 2013; Tanja-Dijkstra & Andrade, 2018). A growing population with changing requirements, along with an increasing body of research relating physical indoor environments to health outcomes, has led to an increased recognition among healthcare managers and medical practitioners of the urgent need to improve healthcare facilities for the health, healing, and wellbeing of patients (Salonen et al., 2013a). Considering the possible influence of healthcare facilities on the environment is critical and certain environmental characteristics should be

determined when developing a new structure (Tanja-Dijkstra & Andrade, 2018). The user, installation maintenance staff, programmers, designers, engineers, construction workers, and suppliers all need to work together to create high-quality interior environments and collaborate on clearly defined principles of design excellence (Salonen et al., 2013a).

2.1.1. Physical Quality of Healthcare Environments

The environment is the initial impression a patient has of a healthcare institution. If the environment indicates that the physicians, nurses, and staff are genuinely involved in its appearance and function and designed with the patient in mind, the patient enters the system with a positive perception of the healthcare process (Arneill & Devlin, 2002). Healthcare services are one of the most personal, vital, and intricate services; because patients want to see proof of the healthcare provider's competence and care, they will act in a "detective-like" way (Tanja-Dijkstra & Andrade, 2018). Yet, it is hard to implement and define the specific objective characteristics of healthcare institutions' physical environments. The number of physical characteristics that have an impact on patients is nearly limitless, and characteristics co-occur (Andrade, Devlin, Pereira, & Lima, 2017). However, physical settings have a crucial role in the effectiveness of patient therapy, recovery, and final outcomes (Mazuch, 2017).

Therefore, it is critical to understand the link between health and the built environment and to incorporate this knowledge into the design (Dinis et al., 2013; Karaca, 2018).

Restoration is the process of renewing, recovering, or reestablishing physical, psychological, and social resources or capabilities, and restorative environments are those that encourage healing and recovery, and promote restoration. Even while restorative processes aren't always tied to a specific setting, certain activities and environments may be more suited for certain types of restorative processes (Hartig, 2004). In the past years, numerous architects and designers, medical experts, and environmental psychologists have explored the impact of the healthcare environment on the wellbeing and health of patients (Di Sivo & Balducci, 2020; Tanja-Dijkstra & Andrade, 2018). There are many studies suggesting different design elements to be used as blueprints when designing healthcare environments. For example, according to Salonen et al., (2013a: 27), the main elements of a healing environment that are most likely to have an impact on a patient's health and wellbeing are: “air quality, thermal comfort, privacy, light, views of nature, access to nature, visual serenity, visual stimulation, positive distractions, access to social support and options for choice”. Likewise, Mazuch (2017: 47) suggested that, to enhance the healing effects of healthcare environments, design elements such as “natural light, artificial light, views, art, smell, modulation of space and form, juxtaposition of furniture, manipulation of scale, proportion and rhythm, together with sound,

texture, materials, ease and flow of movement through space and time, and indoor/outdoor plantscape” should be used.

Similarly, Codinhoto (2013) created a framework for the characterization of the built environment in healthcare facilities. According to Codinhoto’s decompositional approach, the built environment is examined on a broad scale, from the whole structure (primary and secondary care facilities) to a single feature or trait (a chair, a color/texture). As a consequence, it is more difficult to generalize findings since the same attribute might be found in various kinds of structures and be linked to different outcomes. Given the field's complexity, the framework for characterization of the built environment was created as a map that incorporates the aspects discovered throughout the studies. “In this respect, a building type will accommodate many care units that will have within them many settings. Settings are composed by components, furniture and equipment, sub-systems and will perform certain functions” (See Figure 1) (Codinhoto, 2013: 186).

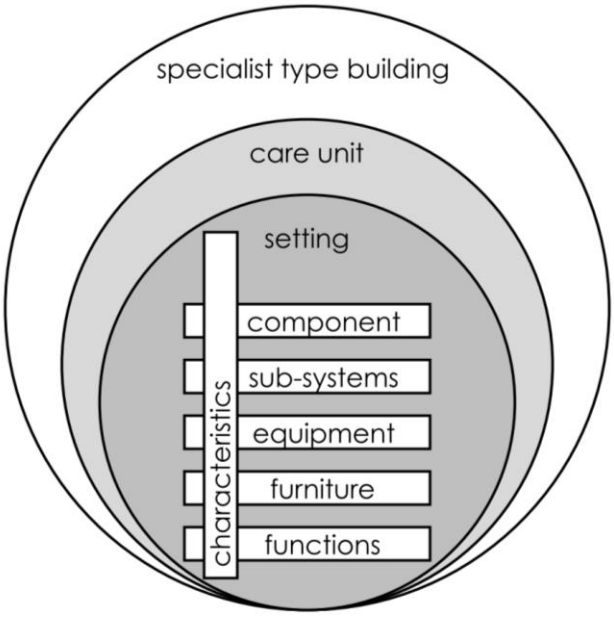


Figure 1. Framework for the built environment in healthcare facilities (Codinhoto, 2013: 187).

2.1.2. Psychological Responses to Perceived Environmental Quality

The physical design is acknowledged as an important component of the patient's experience and gratification with healthcare services (Fischl, 2006). Andrade et al. (2013) discovered that patients were more satisfied in higher-quality healthcare settings due to their positive perceptions of the physical (spatial-physical comfort, orientation, views, and lighting) and social environments (social and organizational relationships and privacy) (Tanja-Dijkstra & Andrade, 2018). The more humanized, patient-centered, and high-quality the healthcare setting is, the more patients might also consider that the physical environment is pleasant (Andrade et al., 2013). Similarly, empathy,

warmth, and friendliness experienced by the patient are all influenced by the surrounding environment and have an impact on the perceived quality (Arneill & Devlin, 2002).

According to the dictionary, to perceive is “to become aware of, know, or identify by means of the senses” (“Perceive”, n.d.). However, senses only access a limited portion of reality as perceived by the individuals. As a result of biological and cultural filters, an individual's true view of their surroundings is distorted, and they internalize an altered version of reality (Silva, Chaves, & Albuquerque, 2016). The behavioral impacts of environmental stimuli have been argued to be multi-factored in the fields of environmental psychology and architectural design. Such approaches suggest that environmental perception is influenced by a variety of factors in addition to objective physical conditions (Fisher, 1974). Therefore, it can be said that objective physical conditions are necessary, but not always sufficient, to predict how an environmental stimulus will be perceived and how a person will act in response to it (Fisher, 1974). Omachonu (1990) also makes an important point, stating that the quality of healthcare is divided into two components: real quality and perceived quality (Arneill & Devlin, 2002). According to Omachonu (1990), the perceived quality of healthcare is not entirely real; perception is involved since the patients are unaware of the level of care they get. Quality assessment is a tough process, as the characteristics of quality on a scale of goodness or badness vary significantly amongst patients (Rahman, Shahidullah, Shahiduzzaman & Rashid, 2002). Hall, Roter, & Katz

(1988), believes that patient satisfaction is related to the amount of information provided by providers, their technical and interpersonal competence, their ability to engage in social conversation, and their overall communication. Additionally, environmental perception varies significantly according to individual and cultural variations; individuals frequently perceive and interpret the same situation differently (Gifford et al., 2011). Hence, patients' perspectives are increasingly being regarded as critical components in determining the quality of healthcare (Qatari & Haran, 1999).

Perceived quality is a key determinant of satisfaction among patients (Arneill & Devlin, 2002). According to dictionary definitions, the term "satisfaction" derives from the Latin root satis, which means "enough". Something that satisfies will properly meet expectations and will leave no space for complaint by providing what is desired. According to John (1991), the idea of patient satisfaction embraces two methods. Patient satisfaction is understood as either an attitude arising from the confirmation or disconfirmation of expectations (result perspective) or as a process emerging from the number of expectations the patient has for the service experience (process perspective). As a result, it is critical to understand not just the outcome of the service experience, but also the reasons and aspects that contribute to satisfaction (Raposo, Alves, & Duarte, 2009).

According to some researchers, patient satisfaction is also defined as the outcome of a gap between a service's anticipated and perceived characteristics (Raposo et al., 2009). It is certain that the perception of quality influences patients' choice of healthcare providers (Qatari & Haran, 1999). While patients are not able to assess if a competent procedure was carried out, they can and do react to how a service is delivered (Arneill & Devlin, 2002). Larsen and Rootman (1976) stated that a patient's satisfaction with healthcare has a significant impact on whether a person seeks medical counsel, follows the treatment, and has an ongoing connection with the physician (Rahman et al., 2002).

Other elements, such as opinions on the quality of staff and care, can also have an impact on the patients' perceived physical environment quality and satisfaction (Andrade et al., 2017). Healthcare practitioners are recognized not just for their medical skills, but also for their attitude toward their patients' care. Patients usually change physicians not because of weak diagnostic and surgical abilities, but because of poor communication (Arneill & Devlin, 2002). Barriers to communication, such as a lack of warmth and friendliness on the part of the physician, inability to address patient concerns and expectations, not explaining the diagnosis and cause of the illness clearly, and using too much medical jargon have been proven to reduce patient satisfaction (Jackson, Chamberlin, & Kroenke, 2001).

Another factor affecting the perceived quality and satisfaction is the patient status. Being an inpatient or an outpatient at a healthcare facility is an entirely different experience. As opposed to outpatients, inpatients are likely to be under greater stress (Tanja-Dijkstra & Andrade, 2018). Inpatients, who spend at least one night in the hospital, are more reliant on nursing care. Outpatients, on the other hand, are supposedly in better health, are less reliant on medical and nursing care, spend much less time in the healthcare system, and have less interaction with physicians, nurses, and administrative personnel than inpatients (Andrade et al., 2013).

Lastly, the relationship between satisfaction and patient outcomes emphasizes the critical role of physical environment characteristics (Zhao & Mourshed, 2017). According to the current findings, the cleanness, temperature, and comfort of facilities have the greatest impact on the positive perception of facilities and, as a result, on satisfaction (Raposo et al., 2009). Other factors identified by Arneill and Devlin (2002) were connected to sensory perception; light (intensity, wave frequency, cycle); temperature (heat shielding, humidity); sound (music, noise, sound simulation); and views of nature from windows. While there are many more factors that affect the quality of environments and satisfaction, it is possible to design safer, less stressful hospitals that support patient restoration by planning such spaces mentioned above (Di Sivo & Balducci, 2020).

There are a lot of different scales for measuring perceived environmental quality in the literature. One example is the Ratings of Environmental Features (REF) (Stokols & Scharf, 1990), which was used in workplace settings. Another example that was used in the workplace setting was the Physical Work Environment Satisfaction Questionnaire (PWESQ) (Carlopio, 1996). Centre for the Built Environment (CBE Survey) (Centre for the Built Environment, 2011), is a very widely used example of a perceived environmental quality questionnaire that is web-based. Another example is the Perceived Hospital Environment Quality Indicators scales (PHEQIs) (Fornara, Bonaiuto, & Bonnes 2006), this scale is used in the hospital environment to rate the hospital setting's quality. Lastly Perceived Environmental Quality Index (PEQI) (Fisher, 1974) is also designed to assess the quality of the environment by using 14 bipolar adjectives. PEQI was previously used by Leather et al. (2003) to assess outpatient clinic waiting rooms, thus it will also be used in this thesis.

2.1.2.1. Mood

The environment's subliminal perception seems to influence a patient's mood and behavior, and some researchers have proposed that subjective reactions to the environment are predictive of mood states (Gatersleben & Griffin, 2017; Mouratidis, 2018). Mood states refer to “the core of emotional feelings of a

person's subjective state at any given moment" (Russell & Snodgrass, 1987: 247), and is usually assessed through verbal or written self-report based on adjectives. Although the concept of mood corresponds to a state rather than a characteristic, mood remains or changes in cycles for no particular reason (Korpela, 2003). Mood has an impact on whether or not someone approaches an environment, what they do there, how they do it, when they leave, what they remember later on, and whether or not they revisit (Staats, Gatersleben, & Hartig, 1997). In this connection, just like shaping actions, moods can also be shown in other ways, such as focusing on emotions. Our moods become emotions, and emotions become moods (Mitchell, 2021).

An emotional state can cause an instinctive or intentional attempt to manage the current mood, such as maintaining a good mood or improving a poor mood. The usage of favorite places and place cognitions, as well as the effects associated with them, aid in the management of self-experience and emotions, for example, by improving negative moods and thereby making them more positive (Li, Deal, Zhou, Slavenas, & Sullivan, 2018). According to Russell and Snodgrass (1987), person-environment relationships are thought to be mostly emotional and the emotional quality of a location accounts for the collective impact of the environment on mood, health, and subjective wellbeing (Leather et al., 2003).

Mood influencing elements have been studied for decades. Interestingly, mood has been observed to change during the day and as a result of many contextual elements such as the environment, interpersonal interactions, physical activity, and food intake (Glasgow, Le, Geller, Fan, & Hankey, 2019). Since healthcare services are highly personalized, they are often seen as an invasive practice, and therefore emotionally charged (Alolayyan & Alfaraj, 2021). Also, healthcare is a high emotional service that comes with a wide range of unknown settings. However, some elements positively affect the mood of patients in healthcare environments; exposure to bright artificial light and daylight (Zhao & Mourshed, 2017), viewing nature and the presence of gardens (Coventry et al., 2021; Meuwese, Dijkstra, Maas, & Koole, 2021; Salonen et al., 2013b), certain scents (Tanja-Dijkstra & Andrade, 2018; Zhang, Tzortzopoulos & Kagioglou, 2019), and the design of the waiting environment (Andrade et al., 2017).

There is a large amount of literature on how to measure different scales of mood with self-report questionnaires. Some of these questionnaires focus on depression, such as; Patient Health Questionnaire 9 (PHQ-9) (Kroenke & Spitzer, 2002) and Well-Being Index (WBI-5) (WHO, 1998). Some focus on anxiety; State Trait Anxiety Inventory (STAI) (Spielberger, 1983). Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988) is a very popular scale that measures the two primary scales of mood, positive and negative affect. Lastly, The Profile of Mood States (POMS) (McNair, Loor, & Droppleman, 1971) is designed to identify the current mood states. POMS

consists of 65 adjectives and uses a 5-point Likert scale from “not at all” to “extremely”. Each of these 65 adjectives are categorized under six subscales: Tension/Anxiety, Depression/Dejection, Anger/Hostility, Fatigue/Inertia, Vigor/Activity, and Confusion/Bewilderment. In the scale; Tension/Anxiety had 9, Depression/Dejection had 15, Anger/Hostility had 12, Fatigue/Inertia had 7, Vigor/Activity had 8, and Confusion/Bewilderment had 7 adjectives. As the final score, the Total Mood Disturbance is calculated by subtracting Vigor (which is the only positive subscale) from the other subscales. Some researchers developed different versions of POMS to accommodate different needs over the years. Cella et al. (1987) created an 11-item version of the POMS by using a single scale of Total Mood Disturbance, discarding the six original subscales. Guadagnoli and Mor (1989) also revised the POMS using a cancer patient population. They were interested in developing a more condensed version of the POMS that would better express mood in a less complicated format (Baker, Denniston, Zabora, Polland, & Dudley, 2002). Heuchert and McNair (2012) developed the POMS 2. More specifically, they developed "Profile of Mood States 2nd Edition-Youth" to assess the mood of youth (13-17 years old) and "Profile of Mood States 2nd Edition-Adult" (POMS 2-A) for adults (18 years old and above) (Lin, Hsiao, & Wang, 2014). Lastly, Shacham (1983) developed a shorter version of POMS (POMS-SF) for patients under stress or pain by reducing two to seven items in each of the six subscales, without losing the internal consistency of the scale. After reducing, Tension had 6, Depression had 8, Anger had 7, Fatigue had 5, Vigor had 6, and Confusion had 5 items. By doing this, Shacham reduced the total number of items from 65 to 37. According

to Baker et al. (2002), POMS-SF, which has a much reduced administration duration while maintaining the six-subscale structure, is an appropriate substitute for the original version. Therefore, the shortened version by Shacham (1983) will be used in this thesis to evaluate the mood of the patients.

2.1.2.2. Stress

Stress has a negative impact on an individual's mood states (Purani & Kumar, 2018). People experience different mood states when they reflect on the personal significance of a preceding experience or contact (such as an event, environment, relationship, or interaction). In both the product and service experience, emotions and mood play an important role in fostering consumer satisfaction and loyalty. Negative emotions like fear and anxiety, cause distinct fight-or-flight reactions, limiting an individual's thought-action definitions compared to those in a neutral state (Ling-Hsin & Yu-Hsiang, 2019). According to the Cambridge dictionary, fear is an unpleasant emotion or thought that people experience when they are scared or concerned about something dangerous, painful, or bad that is happening or may happen (“Fear”, n.d.). In the definition of Fischl (2006), stress is a combination of physical and psychological changes that happen regarding a perceived challenge or danger, such as the result of a person's engagement with their environment. A visit to a healthcare environment is a stressful event for the majority of people. Fear, anxiety, stress,

and uncertainty are common emotions associated with healthcare visits (Arneill & Devlin, 2002; Codinhoto, 2017; Salonen et al., 2013b; Tanja-Dijkstra & Andrade, 2018). In situations when people are faced with a new environment and feel nervous about an approaching event, a welcoming environment helps to alleviate stress and promote psychological wellbeing (Ling-Hsin & Yu-Hsiang, 2019).

The physical environment can be either a stressor or a coping strategy that improves patient satisfaction and recovery (Arneill & Devlin, 2002; Leather et al., 2003). Although the physical qualities of a place are not stressful in and of themselves, they may enhance or reduce the negative effect of certain psychological stressors (Leather et al., 2003). Healthcare facilities must prioritize stress reduction, include healing properties, and provide physical and psychological support for patients, visitors, and employees (Ordia, 2013). The patient's emotional condition and stress have an impact on their level of satisfaction and perceived environmental quality (Jackson et al., 2001). Environmental perceptions also determine the stress response, and these processes are impacted by the environmental and individual characteristics of the patients. In this connection, Fischl (2006) developed a transactional model of person-environment behavior to define stress as a component of the complex and dynamic system of transactions that exists between an individual and his or her environment (See Figure 2). This model is a “compilation of Cox (1978) and Bell et al. (2001) models on person-environment and environment-behavior with

the understanding of Brunswik's lens model (1956) based on Gifford (2002)" (Fischl, 2006: 6). It demonstrates that although the person acts to influence the objective environmental factors, they exist independently of the individual. The model also shows that stress is an individual perception and part of a psychological process and that there are feedback aspects to the system that makes it cyclical rather than linear. According to the model, there are two kinds of achievements; the first one is the state of homeostasis which is when a person controls their own internal environment and keeps things stable. The second achievement is the process of adapting and adjusting, which has positive effects on the body after stress (Fischl, 2006).

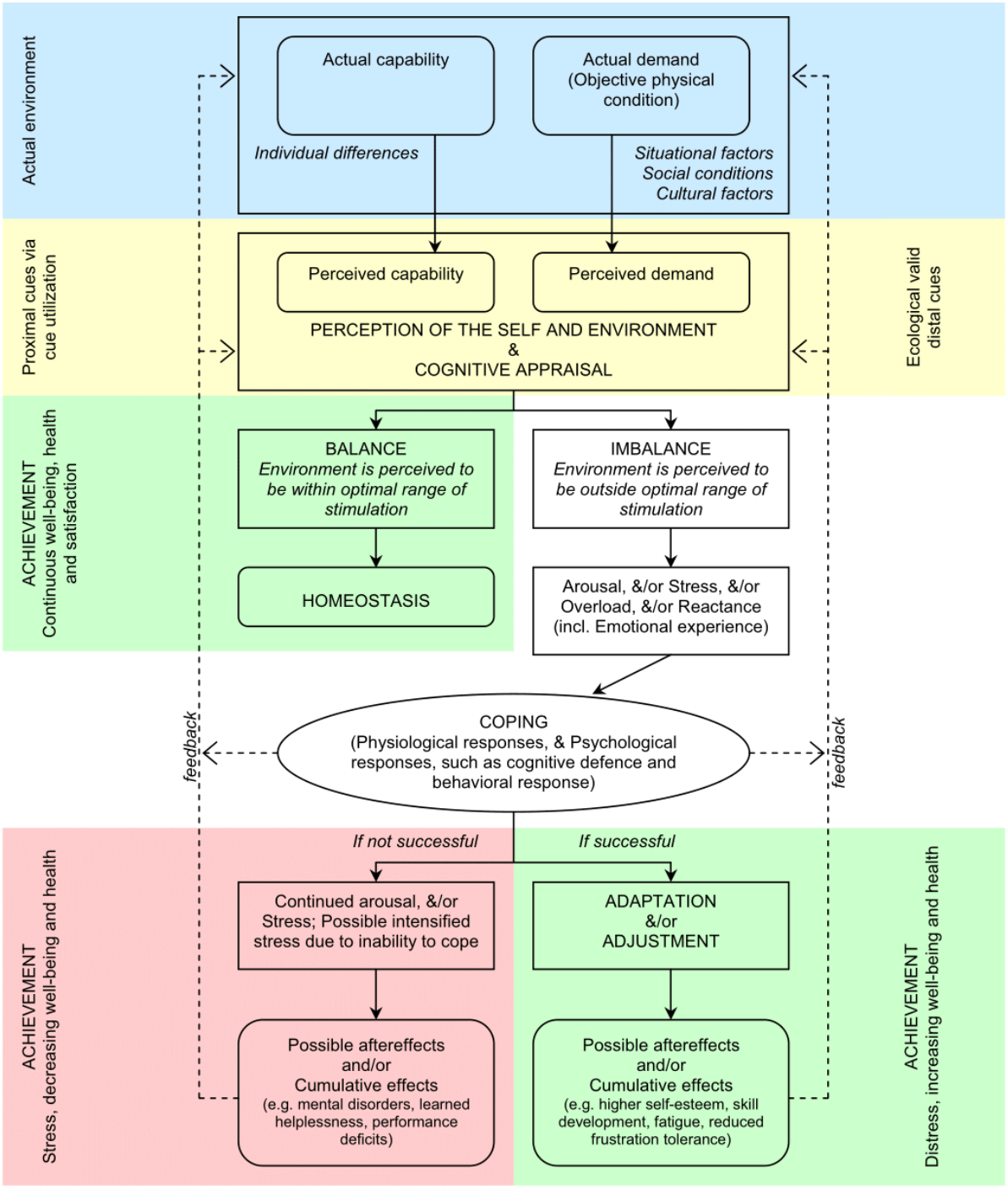


Figure 2. A person-environment-behavior model (Fischl, 2006:7).

Healthcare administrators and medical experts throughout the world are becoming more conscious of the need to develop functioning settings that also include patient-centered or supportive characteristics to assist patients to deal with the stress that comes with disease (Ulrich, 2000). There is, however, a clear need for research to figure out what environmental characteristics people think are stressful as well as what end-users need and want (Fischl, 2006). For example, distraction, which is often accompanied by relaxation or pleasant images, is considered to help patients deal with pain and other unpleasant situations. Consideration of distraction potential in various healthcare settings is therefore beneficial when attempting to build a therapeutic healthcare environment (Tanja-Dijkstra & Andrade, 2018). Likewise, stressed patients and staff benefit greatly from well-designed gardens with sitting spaces, which provide views of nature, social support, privacy, and a break from stressful clinical surroundings (Salonen et al., 2013a). In this connection, stress is very useful in understanding how the physical characteristics of an environment might affect human health and wellbeing. To conclude, physical environments are critical for designing and operating healthcare facilities that support overall health and wellbeing and comply with the current traditional healthcare needs and requirements, while also considering the emotional needs and stress management of patients, their relatives, and healthcare professionals (Salonen et al., 2013a).

2.1.3. Dental Clinics and Waiting Rooms

Patients go to the dentist when they wish to take care of their teeth (Parnes, 2011). According to Türkiye Beslenme ve Sağlık Araştırması (TBSA) (2019), 73% of the individuals in Turkey have oral and dental health problems. In Turkey, the Oral and Dental Health Center is defined by the Ministry of Health as, fulfilling the procedures and principles specified in clinical services (diagnostic treatment and prosthetic services) and preventive dentistry (providing necessary preventive measures and orthodontic services) (Özer Baş & Özer, 2020).

Visits to healthcare environments, particularly dentistry, are often stressful for patients (Labus, Radenković, Rodić, Barać, & Malešević, 2021). Dental anxiety is a worldwide public health concern that has been thoroughly researched (Zegan et al., 2019). According to epidemiological studies conducted in Western countries, a proportion of individuals suffering from severe levels of dental anxiety ranges from 10% to 20% (Scandurra et al., 2021). Dental anxiety is a severe negative emotion connected with dental procedures, oral health-related poor quality of life, and treatment avoidance (Zegan et al., 2019). Dental anxiety emerges due to numerous variables, such as past unpleasant experiences, lack of knowledge, the coping style of the individual, and the clinic environment (Devapriya, 2016). The primary reason patients go to the dentist is to treat dental problems, yet many people put off treatment because they are afraid or

anxious. This aggravates the oral disease, increases treatment complexity and duration, and reduces overall patient satisfaction. A pleasant environment in dental healthcare is important since it evokes positive feelings in patients and promotes dental visits for regular oral exams, hence encouraging oral health (Ling-Hsin & Yu-Hsiang, 2019).

A dental clinic's design must fulfill the needs of the doctor, the staff, the patient, and, in the case of orthodontic and pediatric dentistry clinics, the families of those who come in for treatment (Parnes, 2011). Under minimum conditions, a clinic that meets the needs should have the following sections: treatment and examination rooms, staff rooms, x-ray, offices, waiting area, and archive (See Figure 3) (Özer Baş & Özer, 2020). According to the American Dental Association (ADA) (2017), it is the decisions made about the spatial relationships, equipment, technology, lighting, ceiling height, color selection, and finish materials that determine how successful the dental clinic design is. Additionally, the flow of the clinic is also very important, for example, it is necessary for the receptionist to see the patient upon arrival and immediately before leaving the clinic since she or he routinely sets appointments. Therefore, a good view of the waiting area is required to be able to observe who is currently waiting (Malkin, 2014). Also, the payment area should be physically and audibly separated from the patients in the reception area. The receptionist should also supervise the patient's bathroom. A placement between waiting and treatment should be chosen to allow patients in either section to have access without

having to walk through the other section is preferred. There is an increasing demand for privacy as you move from the reception area to the treatment room, resulting in a treatment area that is not easily accessible or visible to the public (ADA, 2017).

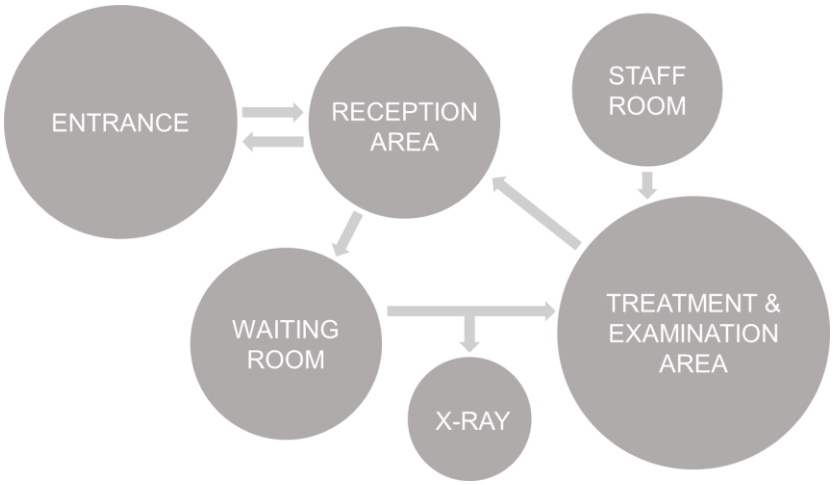


Figure 3. Dental Clinic Plan Function Chart (Adapted from Özer Baş & Özer, 2020).

Having to wait is an unavoidable element of the healthcare experience. While the actual length of time that patients and family spend waiting in clinics vary, waiting is often considered to be an unpleasant experience for individuals, especially in the healthcare industry where people are concerned about their health and wellbeing (Noble & Devlin, 2021; Pati & Nanda, 2011). Providing a pleasant waiting area for patients is a crucial part of the overall healthcare experience (Pati & Nanda, 2011; Xuan, Li, Chen, Cao, & Feng, 2021). A patient's first encounter with a physician or dentist occurs in the waiting room and the picture presented in the waiting room creates the first impression of the

physician for the patient (Malkin, 2014). For example, the seating arrangement in dental clinics, 2.5 seats in the waiting area per exam room is a good rule of thumb. There are numerous variations because not every patient comes with a company and each clinic has its policies regarding walk-ins and patient scheduling. However, if space allows, high-volume clinics with many short sessions, such as orthodontics and pedodontics, should have three to four seats per dental chair (Malkin, 2014).

A patient's mood might be positively or negatively affected by their time spent in a waiting room (Andrade et al., 2017). The waiting room can also have an impact on patients' views of the quality of treatment, their satisfaction with the care, and their health outcomes (Juliá Nehme, Torres Irribarra, Cumsille, & Yoon, 2021; Liddicoat, 2020). According to Leather et al. (2003), the presence of positive distractions in a waiting room that patients perceived to be comfortable resulted in not only reduced levels of stress, but also higher levels of mental stimulation for patients (Kearns, Neuwelt, & Eggleton, 2020). In addition to the architectural features mentioned in the dental setting, some other ambient elements also contribute to the wellbeing of patients in the waiting room such as an open and friendly reception desk, creative ceiling design, indirect lighting (Malkin, 2014), warm appearance (Arneill & Devlin, 2002), the inclusion of natural views (Xuan et al., 2021), natural sounds (Noble & Devlin, 2021), and real plants and posters of plants (Juliá Nehme et al., 2021). Additionally, slow and relaxing music (Juliá Nehme et al., 2021), windows (Noble & Devlin, 2021),

adequate signage, sufficient seats, and an uncluttered area (Xuan et al., 2021) are also important elements of waiting room design.

2.2. Salutogenic Design

Salutogenesis is a research model and theory developed by Aaron Antonovsky in the late 1970s to outline an approach that relies on characteristics that promote human health and wellbeing rather than those that cause sickness. The term "salutogenesis" describes the origins (“genesis”) of health (“salute”) (Vinje, Langeland, & Bull, 2022). The salutogenic model, in particular, is focused on the relationship between health, stress, and coping (Uwajeh & Ezennia, 2019). Through a comprehensive, knowledge-based approach in the delivery of healthy built environments, salutogenic design principles serve to build healthy built environments that benefit users and the local community. This is a way to apply research-based knowledge systematically, with a focus on the wellness design factor, which is when people are exposed to positive stimuli that they find enjoyable when their activity improves their health, wellbeing, and quality of life. By drawing the user's attention, salutogenic designs aim to trigger a mental process that reduces anxiety and fosters happy emotions (Dilani, 2015). As a result, salutogenesis is a great model for educating and inspiring health professionals to provide non-prescriptive assistance in addition to prescription

treatments, and for non-health professionals (designers and architects) to add a health aspect to their work simply by creating more navigable places (Golembiewski, 2022).

Sense of Coherence

Antonovsky (1979), defines health as an ongoing process, with the extremes being health and disease. The criterion that determines where a person falls on the continuum is whether they have a high or low sense of coherence (Dilani, 2001). Sense of coherence is a fundamental feature in the salutogenic model. A strong sense of coherence aids in organizing resources to cope with stressors and effectively regulate tension (Eriksson, 2022; Mittelmark & Bauer, 2022). Sense of coherence consists of three elements: comprehensibility, manageability, and meaningfulness. Jensen, Dür, and Buijs (2022: 296) describe these elements:

1. Meaningfulness: a belief that things in life are interesting, motivating, and a source of satisfaction (motivational).

2. Comprehensibility: a belief that the challenge is understood and that you can understand events in your life (cognitive).

3. Manageability: a belief that resources to act are available and that things are manageable and within your control (behavioral).

Additionally, several design concepts contribute to the sense of coherence in the salutogenic design process, such as culture, aesthetics, sound, temperature, lighting, materials, texture, ergonomics, color, and music (Dilani, 2015).

Antonovsky (1987) investigated how to improve one's sense of coherence. He found out that it could be accomplished by utilizing the resistance resources (RR) of individuals, groups, and even situations (Mittelmark, Daniel, & Urke, 2022). There are two resistance resources; specific resistance resources (SRRs) and generalized resistance resources (GRRs). SRRs are resources whose meanings are determined in terms of the specific stressors that they are called to manage, rather than in terms of the resources themselves. They are improved through social action, with health promotion taking an active part (Mittelmark et al., 2022). GRRs are the characteristics of a person, a group, an environment, or a community that helps the person deal with stressors effectively. The correlation between GRRs and SRRs is that, if relevant SRRs are available, GRRs enables one to recognize, pick up, and utilize SRRs in ways that avoid tension from becoming severe stress (Mittelmark et al., 2022). While “SRRs can be of great help in coping with particular stressors, it is the GRR that determines the extent to which specific resistance resources are available to us.” (Antonovsky, 1979: 98-99). However, they are both biological, material, and psychosocial aspects that help people see their lives as more organized, consistent, and intelligible (Karaca, 2018).

Salutogenic Interventions

Rather than making people better, salutogenic interventions improve the quality of architectural and other interventions; in this manner, salutogenic interventions assist people in helping themselves, making the most of their lives, and being the best versions of themselves. In other words, salutogenic architecture is designed to assist individuals to cope with life's challenges (Golembiewski, 2022). It aids in manageability, comprehensibility, and meaningfulness, as well as its collective synthesis: a sense of coherence. Manageability resources are enhanced by design features such as; functionality, safety, barrier-free accessibility, forgiving nature, and person-centered design. Comprehensibility refers to our ability to comprehend, negotiate, and personalize the situations in which we find ourselves. Hence readability, simplicity, and predictability are all factors that contribute to comprehensibility in design. Meaningfulness is the most abstract of all the salutogenic resources. It is the ability to shift one's focus away from negatives and challenges and toward positive aspirations. Resources for meaningfulness are enhanced by: designing for the larger good, establishing the stage for positive narratives, facilitating meaningful participation, and designing for positive choices (Golembiewski, 2022).

2.2.1. Biophilic Design as an Approach

Biophilia is derived from the Greek words bio (“life”) and philia (“affinity”) (Emamjomeh et al., 2020). The term was first used in 1964 by Dr. Erich Fromm, he described it as the love of life. Later on, Edward O. Wilson (1984) used the phrase, suggesting that humans are drawn to living things from infancy (Byrne, 2010). The concept of biophilic design was later proposed by Stephen R. Kellert in 1993, and it refers to the introduction of natural features and processes into an indoor environment to produce more sustainable environments (Emamjomeh et al., 2020).

Biophilic design promotes the utilization of natural processes and systems in the built environment (Derr & Kellert, 2013). The premise is that exposure to natural environments and characteristics has a good impact on human health and wellbeing. Extensive use of natural materials, forms, and motifs, as well as direct exposure to nature, are all examples of biophilic design characteristics (Gillis & Gatersleben, 2015). Natural characteristics are used to aid in the restoration of psychological health and coherence in patients. While nature does not have a miraculous therapeutic role in curing physical sickness, it is well established that a patient's psychological state has a substantial impact on the length and effectiveness of their physical recovery (Abdelaal & Soebarto, 2019). In 2008 Stephen Kellert established the Attributes of Biophilic Design framework to provide an interaction with nature in the built environment. Architects and

designers can use the framework as a guideline to incorporate biophilic design into their designs to enhance people's physical and mental wellbeing. Kellert (2008) divided the framework into three categories. The first category is the direct experience of nature, it suggests a direct link with natural components in the constructed environment, such as light, air, water, plants, etc. The second group is the indirect experience of nature, it's a reference to the built environment's relationship with natural components, like a picture frame of nature, the use of materials and colors representing nature, and simulation of natural lighting. The third and last group is the experience of space and place, which are spatial elements that remind people of the diversity and order found in nature such as; organized complexity, transitional spaces, and cultural and ecological attachment to places (Emamjomeh et al., 2020).

Kellert (as cited in Chen, 2017), presents a list of biophilic design elements that have the greatest impact on our satisfaction with the built environment, which is meant to be used in combination with the biophilia hypothesis to make our built environment healthier, more abundant and productive. Chen (2017) then combined Caballero (2013) and Kellert, Heerwagen, & Mador's (2008) ideas to create a six-category list (See Table 1);

> Environmental features (elements that capture well-recognized characteristics of the natural world); natural shapes and forms (representations and simulations of the natural world); natural patterns and processes (incorporation of properties found in nature into the built

> environment); light and space (qualities of light and spatial relationships); place-based relationships (the integration of culture and ecology); and evolved human-nature relationships (attributes derived from Kellert's typology of environmental values) (Chen, 2017: 27).

In addition to these biophilic design elements, the effects of natural environments have also been studied using two major theories: Attention Restoration Theory (ART) (Kaplan and Kaplan, 1989; Kaplan, 1995) and Stress Recovery Theory (SRT) (Ulrich et al., 1991). ART argued that people's cognitive capacity may be regenerated in natural environments rich with soft fascinations, reducing mental stress, and increasing concentration and attention. SRT suggests that because of our biological preference for natural environments, exposure to nature activates our parasympathetic nervous system and helps us cope with stress. Even though these two theories are debating about how nature affects human health, they both stated that exposure to natural environments could help people restore their abilities, such as attention restoration and psychophysiological stress recovery (Yin et al., 2020).

Table 1. Elements and Attributes of Biophilic Design (Adapted from Chen, 2017).

Environmental Features	Natural Shapes & Forms	Natural Patterns & Processes
• Color • Water • Air • Sunlight • Plants • Animals • Natural materials • Views and vistas • Façade greening • Geology & landscape • Habitats & ecosystems • Fire	• Botanical motifs • Trees & columnar supports • Animal (mainly vertebrate) motifs • Shells & spirals • Egg, oval, and tubular forms • Arches, vaults, domes • Shapes that resist straight lines and right angles • Simulation of natural features • Biomorphology • Geomorphology • Biomimicry	• Sensory variability • Information richness • Age, change, and patina of time • Growth & efflorescence • Central focal point • Patterned wholes • Bounded spaces • Transitional spaces • Linked series & chains • Integration of parts to whole • Complementary contrasts • Dynamic balance & tension • Fractals • Hierarchically organized ratios & scales
Light & Space	**Place-Based Relationship**	**Evolved Human-Nature Relationship**
• Natural light • Filtered & diffused light • Light & shadow • Reflected light • Light pools • Warm light • Light as shape & form • Spaciousness • Spatial variability • Inside-outside spaces	• Geographic connection • Historic connection • Ecological connection • Cultural connection • Indigenous materials • Landscape orientation • Landscape features that define building form • Landscape ecology • Integration of culture and ecology • Spirit of place • Avoiding placelessness	• Prospect & Refuge • Order & complexity • Curiosity & enticement • Change & metamorphosis • Security & protection • Mastery & control • Affection & attachment • Attraction & beauty • Exploration & discovery • Information & cognition • Fear & awe • Reverence & spirituality

The health benefits of biophilia are measured in several ways. It is helpful to have a basic numerical metric for biophilia that architects can quickly calculate and use when advocating a significant reorientation in architectural culture, which is offered in Biophilic Healing Index B by Salingaros (2019) (Salingaros, 2019). The biophilic index is easy for most people to understand and measures an important part of our environment that affects our health. It has ten components: *sunlight* (two sides of a room with natural light), *color* (derives from the color of transmitted light as well as pigments on surfaces), *gravity* (vertical axis of buildings must be strengthened so that they do not threaten to collapse on our heads), *fractals* (forms split in scales regularly), *curves* (balanced curves in a building's design operate alone or in conjunction with bringing plant curves up near to and inside structures), *detail* (details in our immediate environment that are relevant and evident), *water* (seeing and hearing water nearby), *life* (lots of plants, animals, and people around), *representations-of-nature* (photography, paintings, and sculptures featuring realistic renderings of plants, animals, and people), and *organized-complexity* (purposeful, well-organized complexity) (Salingaros, 2019). Researchers and designers can use Biophilic Healing Index B to assess an environment to see the biophilic level of that environment and can improve it accordingly.

2.2.2. Salutogenic Design in Healthcare Environments

Practitioners of biophilic design argue that bringing natural elements into healthcare settings can reduce stress and increase healing effects. In accordance with this, healthcare practitioners are progressively incorporating natural elements into healthcare facilities (Tanja-Dijkstra & Andrade, 2018). There is still a lot of unexplored potential in healthcare to be more disease-preventive, protective, and promoter of better overall health. Yet, bringing salutogenesis to healthcare is a very complex and difficult task. Salutogenesis in healthcare, in theory, implies restricting the predominant pathogenic emphasis in healthcare practice and replacing it with a salutogenic orientation. To achieve this, it must be implemented as an addition to existing routines, and it must be integrated into existing practices by reorienting the key processes of healthcare delivery (Pelikan, 2022).

According to Pelikan (2022), there are three assumptions for describing a salutogenic orientation: It is universal to deal with accompanying tension that might lead to stress; the classification of people as healthy or sick is arbitrary and insufficient; and as a result, risk and health-promoting variables must be addressed. In light of these three assumptions, the following health promotion implications follow: To include all people, regardless of where they are on the continuum; to concentrate on positive aspects; and instead of focusing on a single diagnostic area, these “must relate to all characteristics of the individual"

(Antonovsky, 1996: 14). When these assumptions and implications are applied to healthcare practice, it implies that:

1. Because a salutogenic approach embraces all people regardless of their place on the healthy/disease continuum, healthcare is responsible not just for the health of its patients, but also for the health of its employees and the health of the inhabitants in its catchment area.
2. In treating, preventing, protecting, and promoting these three types of stakeholders, healthcare must address not only their risk factors but also their potential beneficial factors.
3. When dealing with people who are affected by healthcare, it is necessary to take a holistic approach that considers the physical, mental, and social dimensions of a person.

To put these requirements into practice in the healthcare system: A policy shift in healthcare mandate is required, as is an expansion of the traditional diagnostic and treatment repertory, as well as a fundamental shift in clinical approach (Pelikan, 2022).

In addition to these implications, there are two very well-known design theories used in healthcare environments to provide a healing environment using salutogenic design; Psychosocially Supportive Design and Supportive Design Theory.

Psychosocially Supportive Design

Psychosocially Supportive Design, a theory designed by Dilani (2001), suggests a potential model for health promotion through design in the physical environment, specifically in healthcare facilities. Psychosocially Supportive Design's primary goal is to initiate a mental process by drawing attention to lowering anxiety and increasing psychological emotions (Uwajeh & Ezennia, 2019). Hence, the salutogenic approach is a health promotion design method that offers a fundamental theoretical basis for Psychosocially Supportive Design. In the salutogenic model, health outcomes are not only related to stress-relieving elements but are also linked to environmental attributes that can be used to evaluate the beneficial impacts of health outcomes on the environment (Dilani, 2001). An active connection to nature is one of the most significant design elements of Psychosocially Supportive Design. Therefore, the salutogenic and biophilic design theories provide a thorough knowledge of the link between people, the built environment, and nature (Abdelaal & Soebarto, 2019).

Supportive Design Theory

Supportive Design Theory is a theory designed by Ulrich (1991), which investigates how to use the built environment to reduce stress and stress-related elements by giving users in the physical environment a sense of control, access to social support, and access to positive distractions. Uwajeh and Ezennia (2019), further explain these three properties of healthcare settings; a sense of control refers to creating a more controlled environment by giving opportunities to modify certain aspects of the environment. Access to social support can be defined as providing appealing and comfortable waiting spaces, socially enhancing seating places, access to and views of nature, and an effective work environment that improves staff access to social support from coworkers and patients. Lastly, access to positive distractions refers to distractions like music, art, and nature views (Uwajeh and Ezennia, 2019). These can be implemented in several ways, such as having access to private spaces, increased personalization and control, providing spaces that enable families to visit more frequently, seating that urges socializing, and having access to nature (Colley & Zeeman, 2020). In conclusion, salutogenic thinking has a lot of potential in healthcare for health-promoting procedures for patients, staff, and citizens, as well as supporting health-promoting structures and cultures of healthcare institutions for improved everyday practice and policy (Pelikan, 2022).

To summarize, while there are many different salutogenic design theories applied in the healthcare environment, and studies have proven the benefits of biophilic design, the use of biophilic design as a salutogenic method to analyze patients' perceived environmental quality and respective mood has not been thoroughly studied. Hence, the purpose of this thesis is to fill a gap in the design literature by investigating the impacts of biophilic design as a salutogenic design method on patients' perceptions of environmental quality and mood in dentistry clinics waiting rooms.

CHAPTER 3

METHODOLOGY

3.1. Research Questions and Hypotheses

There are four main research questions in this thesis:

RQ1: Do waiting rooms with a high biophilic score increase the perceived environmental quality of patients?

RQ2: Do waiting rooms with a high biophilic score increase the mood of patients?

RQ3: Is there a relationship between a patient's perceived environmental quality and mood?

RQ4: Does visiting frequency influence the perceived environmental quality of patients?

The following hypotheses are investigated to meet the thesis's objectives:

H1: There is a statistically significant difference in patient's perceived environmental quality between the high and low biophilic scored waiting rooms.

H2: There is a statistically significant difference in patient's moods between the high and low biophilic scored waiting rooms.

H3: There is a positive correlation between patient's perceived environmental quality and mood.

H4: Participants who visit dental clinics more frequently have a higher perceived environmental quality.

3.2. Setting

Initially, six potential dental clinics in Çankaya, Ankara, Turkey were chosen to be evaluated by experts. These six clinics were chosen because; Ankara is the capital of Turkey and Çankaya has the most significant proportion in terms of habitants (UN Habitat, 2018). Also, clinics were chosen from areas with similar incomes in the Çankaya district. Experts scored these six clinics' waiting rooms according to their biophilic qualities. The details of the expert analysis will be mentioned in the participants and procedure. After the evaluation, two clinics

with the highest (Clinic A) and lowest scores of biophilic design (Clinic B) were chosen to be used in the experiment. Waiting rooms of these clinics were used for data collection from the patients. The experiment was conducted between February 15, 2021, and May 15, 2021. It should be noted that the name or private issues of the clinics are not concerns of the thesis, instead, the framework of the thesis focuses on the physical characteristics/architectural properties of the clinics.

Clinic A is located in the Aziziye neighborhood, Çankaya district. 3 dentists are working in the polyclinic and they offer the services; dental aesthetics, dental implantations, digital dentistry, orthodontic treatment, periodontology, pedodontics, and restorative dentistry. The clinic occupies the 3rd floor of a fairly new building (under five years). The waiting room is 54 m^2, and the floor plan is shown in Figure 4, and the photos of the clinic are presented in Figures 5 & 6. The entrance of the clinic is looking at the reception desk and opens up to the waiting area to the right. To the left of the entrance is the treatment area. There are 5 treatment rooms, 2 doctor rooms, 1 sterilization room, 1 kitchen, and 1 bathroom in the clinic. The treatment rooms are looking at a very busy street, the waiting room is looking at the back of the building and the view consists of other buildings in the area. The waiting room has a seating area for 9-15 patients and 2 for children. The waiting room has multiple sculptures, a television, standing speakers, some flowers, and a bathroom for patients to use.

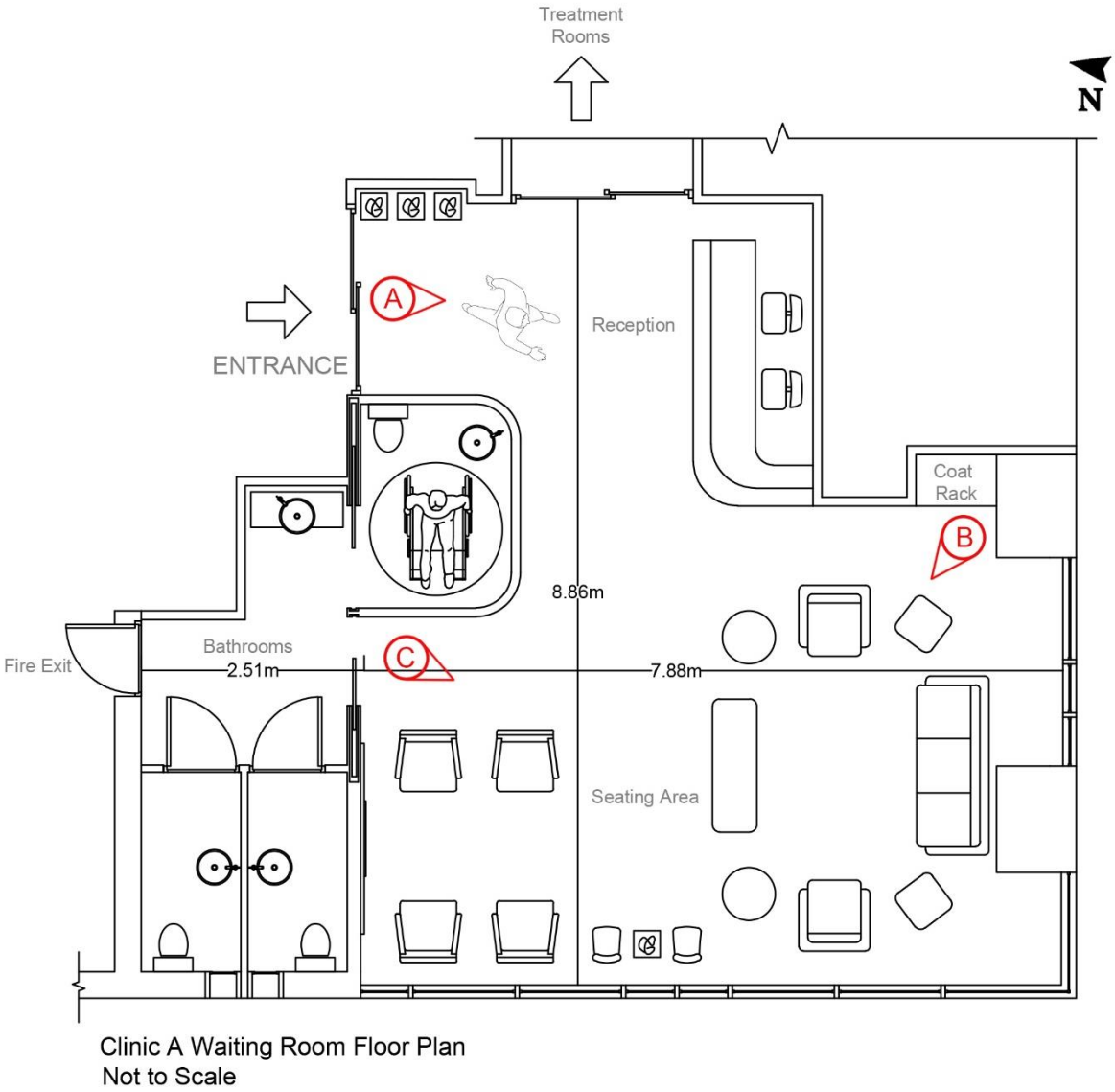


Figure 4. Floor plan of Clinic A (drawn by the author, 2022).

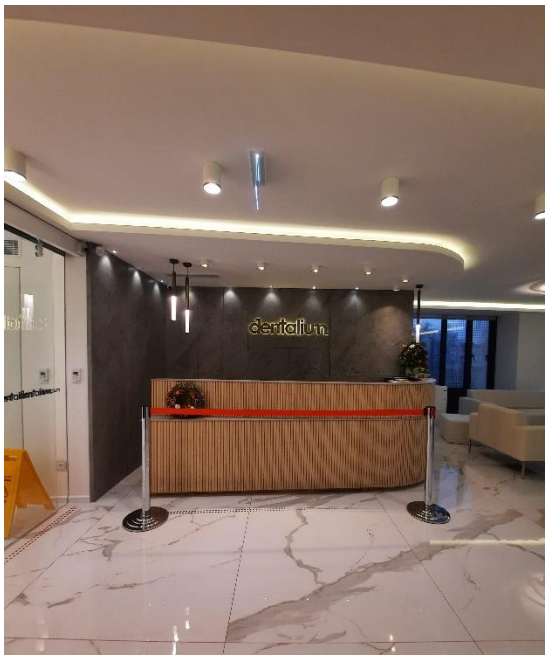
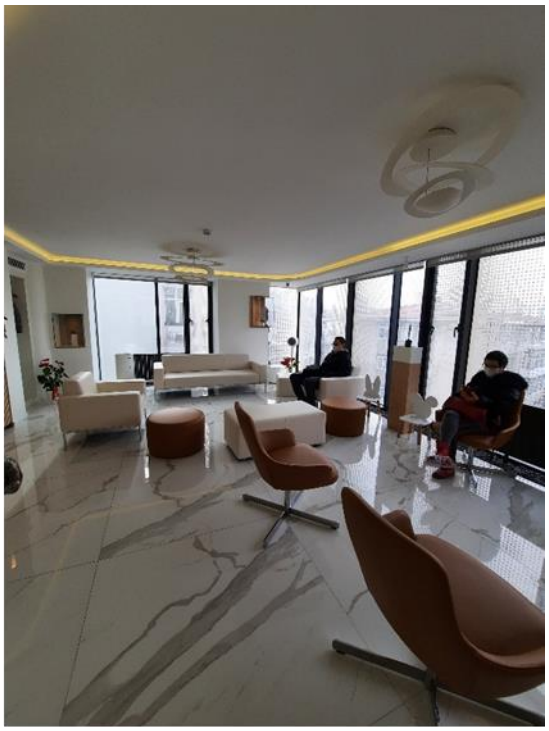


Figure 5. Photo of the entrance from the cone of vision A (taken by the author, 2022).

(a)



(b)

Figure 6. Photos of Clinic A waiting room; (a) from the cone of vision B (b) from the cone of vision C (taken by the author, 2022).

Clinic B is located in the Kültür neighborhood, Çankaya district. There is a single dentist in the clinic and he offers the services; dental aesthetics, dental implantations, orthodontic treatment, and restorative dentistry. The clinic is on the 2nd floor of a building that is 40 years old. The waiting room is 26 m^2, the floor plan is shown in Figure 7, and the photos of the clinic are presented in Figure 8. The entrance of the clinic opens up to the circulation area of the clinic. Straight forward is the kitchen, the waiting room is located on the left, and the treatment rooms are located on the right side. There are 2 treatment rooms, 1 doctor room, 1 sterilization room, 1 kitchen, and 1 bathroom in the clinic. The treatment rooms are looking at a busy street and the waiting room is looking at other buildings in the area. The reception desk is located in the waiting room. The waiting room has a seating area for 5 people. There is a television, some artwork on the walls, and books and some toys for kids. Additionally, it is important to mention that Clinic B mostly keeps its curtains closed.

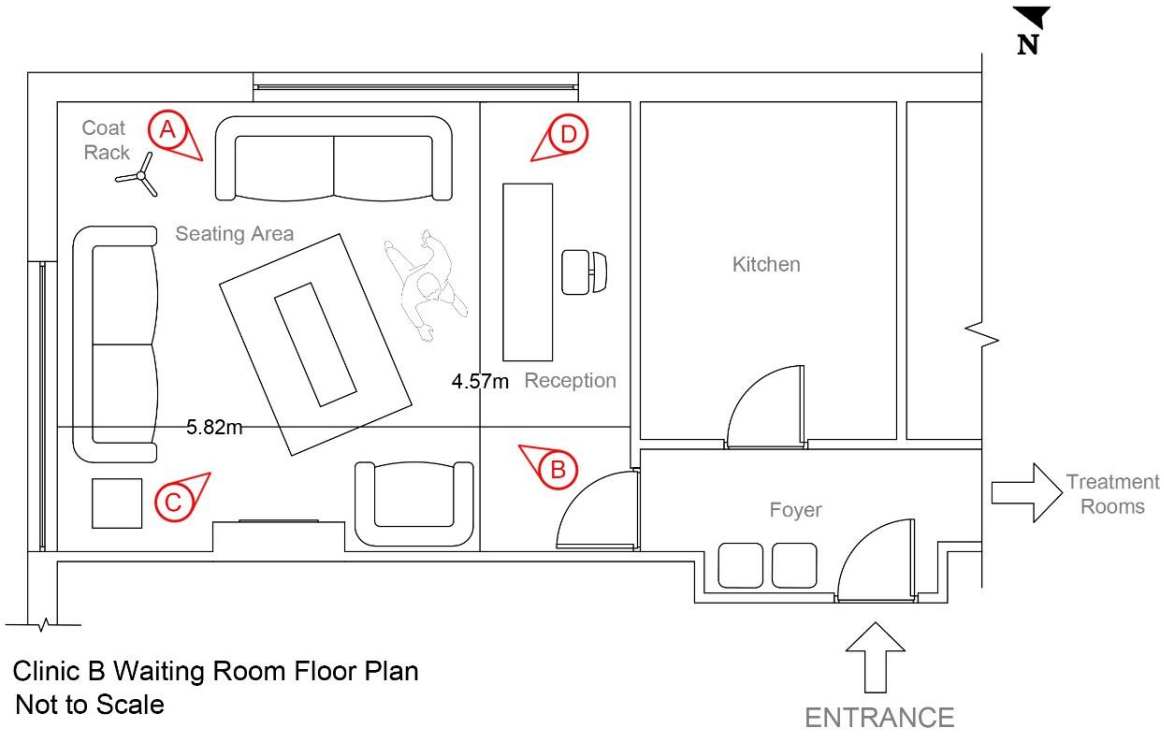


Figure 7. Floor plan of Clinic B (drawn by the author, 2022).

Figure 8. Photos of Clinic B's waiting room; (a) from the cone of vision A (b) from the cone of vision B (c) from the cone of vision C (d) from the cone of vision D (taken by the author, 2022).

3.3. Participants

3.3.1. Experts

Five experts were chosen with snowballing sampling method to evaluate the six clinic waiting rooms. Every expert had previous experience with designing healthcare environments. There were 1 female and 4 male experts. They were aged between 35 and 70. For the evaluation of the clinics using the Biophilic Index, each expert was sent an online form. In this form, the experts filled their demographic information and were shown four to five photos of each clinic. After looking at the photos they were asked to fill out the Biophilic Healing Index B form for each clinic.

3.3.2. Patients

The study was approved by the Institutional Ethical Review Board of Bilkent University prior to the start of the study. The ethics form included the study aims, participants, procedure, and instruments, and is listed in Appendix A. The consent form for the participants was also reviewed by the ethics committee. It included the study brief, study confidentiality, and the participant's right to withdraw at any moment. Before starting the survey all the participants were given the consent form. Participants were selected with a random sampling

method from the clinic's current patients, and their participation was fully voluntary. Participants were not compensated for their participation in this experiment.

The experiment took place in the waiting room of the dental clinics. Participants were approached while they were waiting for their appointment. The study recruited a total number of 104 participants (57 females and 47 males). In Clinic A, there were 54 participants (28 females and 26 males). The participants were aged between 19 and 67. In Clinic B, there were 50 participants (29 females and 21 males). The participants were aged between 22 and 70.

3.4. Procedure

The thesis is composed of three phases; Phase I (deciding on biophilic assessment), Phase II (waiting room assessments), and Phase III (executing the experiment) (See Figure 9). In the first stage of Phase I, the design features and characteristics of biophilic environments were retrieved from the literature. After multiple biophilic environment instruments were researched, a biophilic environment assessment scale was selected (Biophilic Healing Index B). In Phase II, six clinics were decided to perform the assessment. The next step was to find five experts, architects who are experienced in healthcare design to

perform the Biophilic Index on the dental clinic waiting rooms. After finding the experts, they were sent a form that included detailed pictures of each clinic's waiting rooms and the Biophilic Healing Index B at the end of each clinic picture. With the calculation of the results, the highest and lowest scored clinic waiting rooms were selected to use in the thesis. In Phase III, biophilic and salutogenic designs and healthcare environments were researched in the literature. Later, perceived environmental quality and mood instruments were analyzed and the questionnaire was developed with the selected instruments. The survey was conducted with the participants in the selected waiting rooms while they were waiting for their treatments. After the data collection was finalized, the gathered data was evaluated and analyzed. Finally, the design guidelines for the waiting rooms were developed.

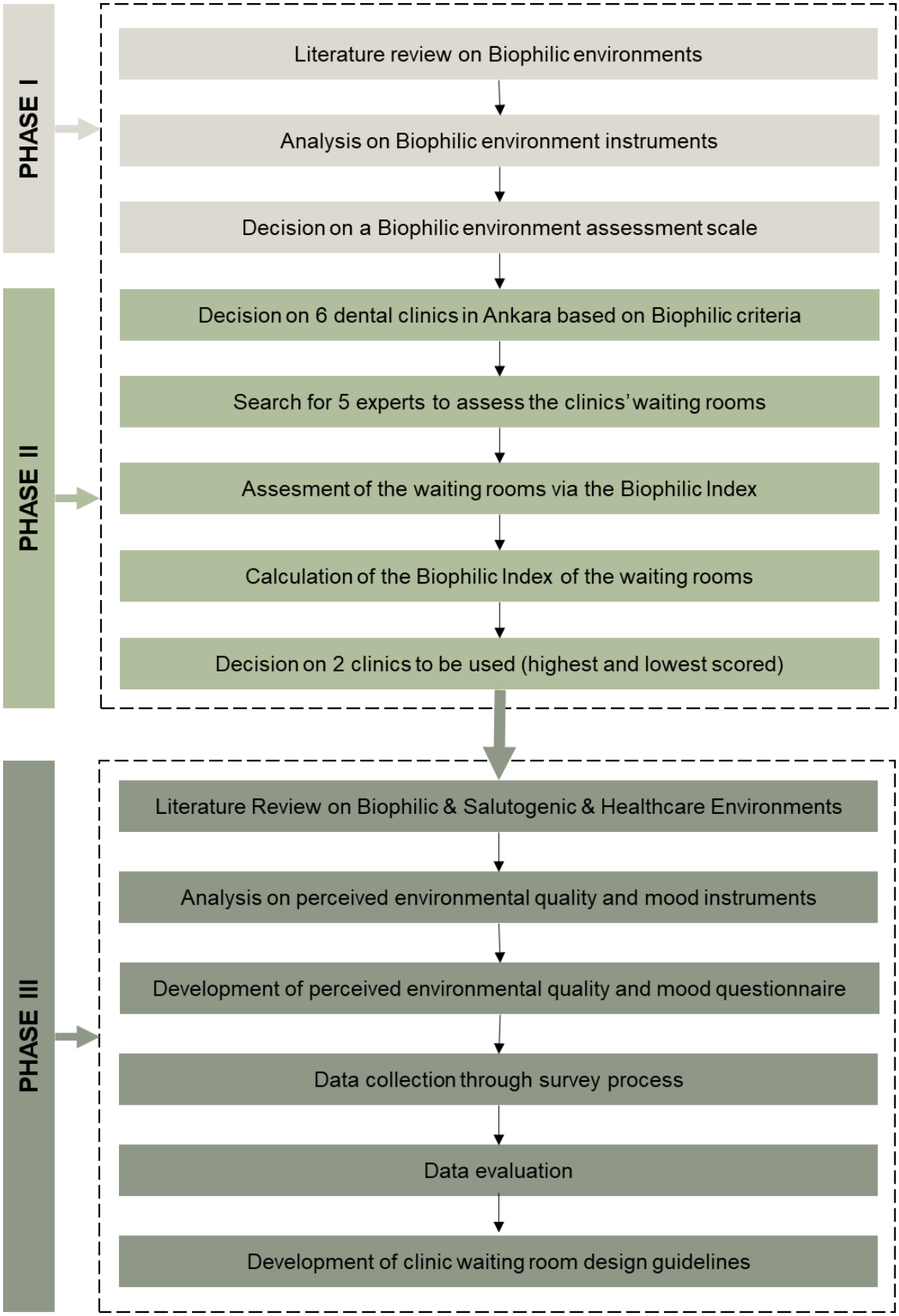


Figure 9. Procedure map of the thesis (drawn by the author, 2022).

3.5. Instrumentation and Data Collection

The instrumentation for the thesis is divided into two sessions and is composed of three instruments. In the first session, the Biophilic Healing Index B by Salingaros (2019), was used in the expert analysis for the clinic waiting rooms. The Biophilic Index B provides a simple numerical scale that architects can apply to achieve a significant reorientation in architectural culture. It has ten components; “sunlight”, “color”, “gravity”, “fractals”, “curves”, “detail”, “water”, “life”, “representation-of-nature”, and “organized-complexity”. The details of the components are shown in Figure 10 and were previously mentioned in the literature review. Each component was scored with a 3-point Likert Scale, 1 for “None”, 2 for “Some”, and 3 for “A Large Amount”.

1. **Sunlight**: preferably from several directions.
2. **Color**: variety and combinations of hues.
3. **Gravity**: balance and equilibrium about the vertical axis.
4. **Fractals**: things occurring on nested scales.
5. **Curves**: on small, medium, and large scales.
6. **Detail**: meant to attract the eye.
7. **Water**: to be both heard and seen.
8. **Life**: living plants, animals, and other people.
9. **Representations-of-nature**: naturalistic ornament, realistic paintings, reliefs, and figurative sculptures — including face-like structures.
10. **Organized-complexity**: intricate yet coherent designs — and extends to symmetries of abstract face-like structures.

Figure 10. Ten components of the Biophilic Healing Index B (Salingaros, 2019: 15).

The second session started after the experts completed the analysis, and the highest and lowered scored clinics were chosen to use in the thesis. Patients in both clinics were approached in the waiting room and were handed the questionnaire which consisted of three parts. The first part consisted of the demographic questions; age, gender, education, and visiting frequency to the clinic. The second part consisted of the second instrument in the thesis, a measure of affective appraisal, the Perceived Environmental Quality Index (PEQI) by Fisher (1974). PEQI has fourteen bipolar adjectives, conveying either positive or negative perceptions of the surrounding environment with a 7-point scale (See Figure 11). Finally, the last instrument is the SV-POMS by Shacham (1983), which is the shortened version of the original Profile of Mood States (POMS) by Mcnair et al., (1971). POMS uses a 5-point Likert scale from “not at all” to “extremely”, has 37 items compared to the original 65 item version, and has six subscales; Tension/Anxiety, Depression/Dejection, Anger/Hostility, Fatigue/Inertia, Vigor/Activity, and Confusion/Bewilderment.

Figure 11. Bipolar adjectives of PEQI (Fisher, 1974).

CHAPTER 4

RESULTS

This chapter of the thesis presents the findings and statistical analysis of the data collected for this thesis. Also, it presents the findings of the expert analysis. The obtained data were processed and analyzed using IBM SPSS Statistics 24 software.

4.1. Expert Analysis

As mentioned previously the clinics used in the thesis were chosen through expert analysis. There were five experts in total and they were selected randomly among architects who had experience with designing healthcare environments. The majority (80%) of the experts were male. They were aged between 35 and 70, with a mean age of 53.40 years. The professional experience of the experts was a minimum of 14 years and a maximum of 45

years, with a mean experience of 28.60 years. Table 2 presents the expert's characteristics.

Table 2. Descriptive statistics of the evaluators.

	Gender	Age	Experience (in years)
Expert 1	Male	59	36
Expert 2	Male	60	37
Expert 3	Female	35	14
Expert 4	Male	43	21
Expert 5	Male	70	45

Each expert evaluated the six clinics with their photos and the Biophilic Healing Index B. According to the results, clinic number five (Clinic A) got the highest score and clinic number one got the lowest score (See Figure 12). Therefore, those two clinic waiting rooms were chosen to be compared in the thesis.

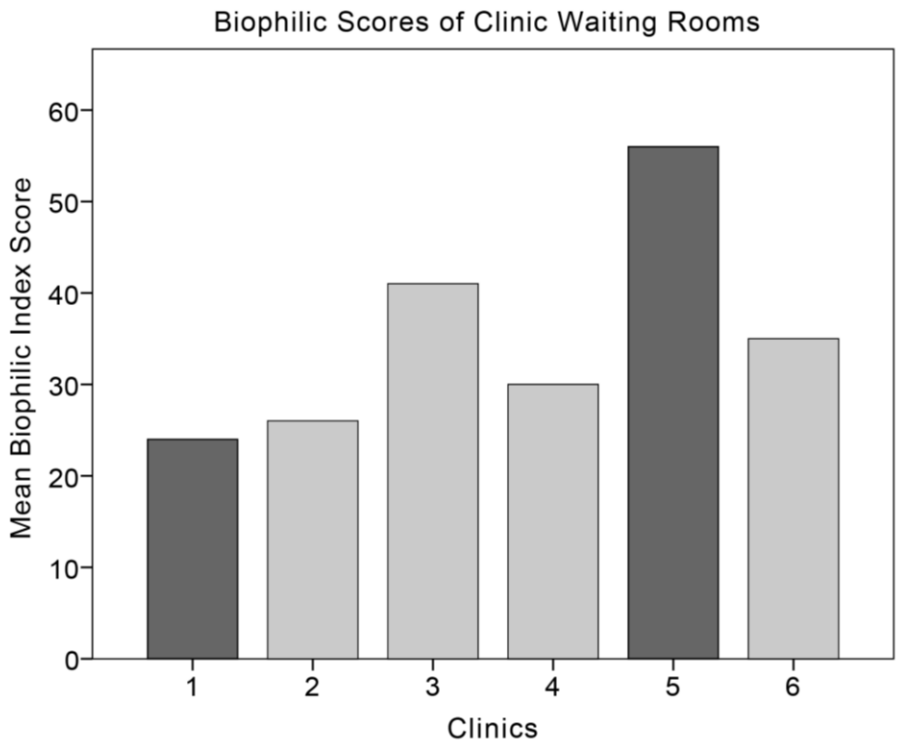


Figure 12. Biophilic Scores of the Clinic Waiting Rooms.

4.2. Descriptive Analysis

With the demographic questionnaire, participant's age, gender, and education were obtained. It also included the participant's frequency of visit to the dentist's clinic. There were 104 participants (57 females and 47 males) in total. The participants were aged between 19 and 70 years old, with a mean age of 41.75 (SD=14.611). In Clinic A, there were 54 participants (28 females and 26 males). The participants were aged between 19 and 67, the mean age was 39.67 (SD= 14.447). Participants' level of education was: 5 elementary, 12 high school, 27

undergraduate, 8 graduate, and 2 postgraduate. Their visit frequency was; 3 once a month, 8 once every two months, 18 once every six months, 18 once a year, and 7 less than once a year. In Clinic B, there were 50 participants (29 females and 21 males). The participants were aged between 22 and 70, the mean age was 44.00 (SD= 14.597). Participants' level of education was: 3 high school, 32 undergraduate, 12 graduate, and 3 postgraduate. Their visit frequency was; 7 once a month, 6 once every two months, 12 once every six months, 13 once a year, and 12 less than once a year. Table 3, Table 4, and Table 5 list the demographics of the participants.

Table 3. Distribution of gender by the clinic.

Characteristic	Category	Clinic		Total
		A	B	
Gender	Female	28	29	57
	Male	26	21	47
Total		54	50	104

Table 4. Distribution of education level by the clinic.

Characteristic	Category	Clinic		Total
		A	B	
Education	Elementary	5	0	5
	High School	12	3	15
	Undergraduate	27	32	59
	Graduate	8	12	20
	Post Graduate	2	3	5
Total		54	50	104

Table 5. Distribution of visit frequency by the clinic.

Characteristic	Category	Clinic		Total
		A	B	
Frequency of Visit	Once a month	3	7	10
	Once every two months	8	6	14
	Once every six months	18	12	30
	Once a year	18	13	31
	Less than once a year	7	12	19
Total		54	50	104

4.3. PEQI Analysis

The first step for assessing the patients' perceived environmental quality was to calculate the PEQI scores. The PEQI was calculated following the guidelines provided by Leather et al (2003). On the PEQI, the lowest possible score was 14 and the highest possible score was 98. Clinic A participants had a mean score of 87.19 (SD=11.719), whereas Clinic B participants had a mean score of 74.14 (SD=13.471). These results indicated that the participants in Clinic A (clinic with the higher biophilic score) had higher perceived environmental quality than those in Clinic B (clinic with the lower biophilic score). The descriptive statistics for each of the 14 ratings are shown in Table 6, which reveals that the two waiting rooms were marked differently. Specifically, Clinic A was rated as being more *open, colorful, positive, stimulating, large, attractive, relaxed, comfortable, cheerful, good, lively, bright, motivating,* and *pleasant.* Additionally, the sample means for each waiting room are displayed along the horizontal dimension in Figure 13.

The independent samples t-test was also used to see whether there was any difference in perceived environmental quality between the clinics. The independent t-test findings with equal variances assumed revealed a significant difference in patients' perceived environmental quality across clinics (t=5.279; df=102; p=0.000).

Table 6. Descriptive statistics for PEQI.

	Clinic A (n=54)		Clinic B (n=50)	
PEQI Item	M	SD	M	SD
Open - Closed	6.19	1.167	5.16	1.543
Colorful - Drab	6.04	1.273	4.88	1.272
Positive - Negative	6.37	1.033	6.00	0.990
Stimulating - Boring	6.20	1.139	4.60	1.552
Large - Small	6.43	0.903	4.96	1.277
Attractive - Unattractive	6.13	1.401	4.76	1.437
Relaxed - Tense	6.13	1.467	5.02	1.660
Comfortable - Uncomfortable	6.43	0.944	5.72	1.499
Cheerful - Depressing	6.02	1.221	5.04	1.577
Good - Bad	6.39	1.054	6.14	1.246
Lively - Unlively	6.20	1.172	5.38	1.292
Bright - Dull	6.19	1.333	5.24	1.318
Motivating - Unmotivating	6.31	0.948	5.14	1.443
Pleasant - Unpleasant	6.46	1.004	5.86	1.107

Cronbach's alpha coefficient was used to calculate the internal consistency of the total items to establish the instrument's reliability. The Cronbach’s alpha for the overall scale was 0.934 which showed a very strong reliability of PEQI.

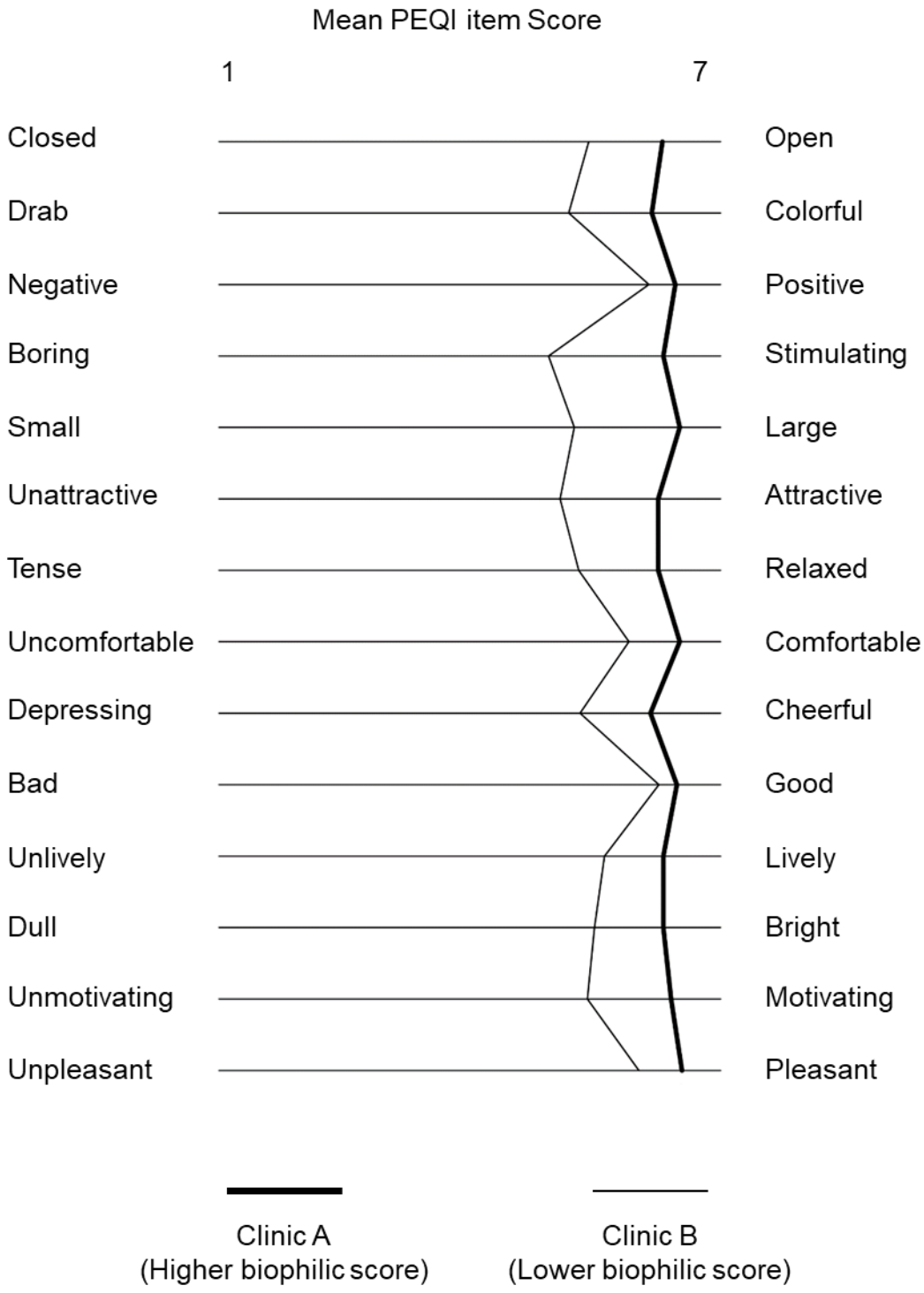


Figure 13. Bipolar adjectives used to measure perceived environmental quality on clinics.

Additionally, a one-way ANOVA test was conducted to see if the PEQI scores were different for different visiting frequencies of the patients. The results of the test are shown in Table 7, (F (4, 99)=2.956, p=0.024).

Table 7. One-way ANOVA for the PEQI scores and visit frequency.

		Subset for alpha = 0.05	
Frequency of Visit	N	1	2
Less than once a year	19	73.74	
Once a month	10	75.90	75.90
Once every six months	30	81.10	81.10
Once a year	31	83.39	83.39
Once every two months	14		88.36

Scheffe [a,b]

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 17.262.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The ANOVA results indicated that there was a significant difference between the visiting frequencies “once every two months” and “less than once a year” at a significance level 95%. There is no significant difference between other groups of visiting frequencies at a significance level 95%.

4.4. POMS Analysis

The first step for assessing the patients' mood was to calculate the scores of the POMS instrument. According to the POMS, items 4, 7, 11, 16, 18, 21, 26, and 32 assess Depression (D); items 6, 14, 29, 33, and 35 assess Confusion (C); items 1, 9, 12, 13, 20, and 25 assess Tension (T); items 2, 3, 17, 19, 23, 28, and 30 assess Anger (A); items 15, 24, 27, 36, and 37 assess Fatigue (F); items 5, 8, 10, 22, 31, and 34 assess Vigor (V). The POMS was calculated as described in the guidelines offered by Wang, Zhu, Shang, & Chiang (2019), when the Vigor (only positive subscale) score is subtracted from the total of all the other mood scale scores, the result is a measurement of Total Mood Disturbance (TMD).

$$TMD = D + C + T + A + F - V$$

The minimum score that could be received on POMS was -24 and the maximum was 124. A high TMD score means you're in a poor mood. With the exception of V value, the greater the dimension (containing D, C, T, A, F) values, the worse the mood is (Wang et al., 2019). The mean scores for the subscales are presented in Table 8. In general, there is a very slight difference in the TMD mean scores between clinics throughout all subscales. The patients of Clinic A had a total TMD mean score of 9.87 (SD=22.607) while Clinic B reported a total TMD mean score of 9.10 (SD=21.611), indicating that the clinics didn't differ in terms of mood states. The results reported that the participants of Clinic A have a higher mean score in Depression, Confusion, Tension, Anger, and Vigor,

indicating that the mood disturbance is higher in Clinic A. However only the Fatigue mean score is higher in the Clinic B.

Table 8. POMS subscale mean scores.

		Clinic A (n=54)		Clinic B (n=50)	
Subscale	Item	M	SD	M	SD
Depression	4, 7, 11 16, 18, 21, 26, 32	0.69	0.813	0.51	0.709
Confusion	6, 14, 29, 33, 35	0.90	0.787	0.64	0.727
Tension	1, 9, 12, 13, 20, 25	0.99	0.729	0.84	0.639
Anger	2, 3, 17, 19, 23, 28, 30	0.84	0.724	0.61	0.579
Fatigue	15, 24, 27, 36, 37	0.76	0.872	0.79	0.984
Vigor	5, 8, 10, 22, 31, 34	2.63	0.693	1.92	0.782

The independent samples t-test results showed that there were no differences between the subscales Depression, Confusion, Tension, Anger, and Fatigue. However, in terms of Vigor, the t-test results indicated a significant difference between participants in clinics (t=4.927; df=102; p=0.000) (see Table 9).

Table 9. Results of the independent samples t-test for POMS by subscales.

Subscales	t	df	sig. (2-tailed)
Depression	1.166	102	0.246
Confusion	1.744	102	0.084
Tension	1.092	102	0.277
Anger	1.800	102	0.075
Fatigue	-0.178	102	0.859
Vigor	4.927	102	0.000

The instruments' reliability was tested using Cronbach's alpha coefficients for POMS to establish the internal consistency of the total items and its subscales; Depression, Confusion, Tension, Anger, Fatigue, and Vigor. The Cronbach's alpha for the overall scale was 0.833 which showed a strong reliability of POMS. The scores of the Cronbach's alpha for POMS six subscales were 0.892, 0.784, 0.720, 0.791, 0.896, and 0.867 respectively, which showed that all subscales had high reliability and internal consistency.

A one-way ANOVA test was conducted to see if the POMS scores were different for different visiting frequencies of the patients. The results of the test showed

that there was no significant difference between the visiting frequencies (F (4, 99)=1.418, p=0.234).

The relationships between PEQI and POMS were analyzed using bivariate correlation analysis. The results of the test are shown in Table 10. The results of the correlation test indicated a negative weak relationship between the instruments at significance at 0.01 level, PEQI and POMS (r=-0.316, p=0.001).

Table 10. Bivariate correlation between PEQI & POMS.

		PEQI Scores	POMS Scores
PEQI Scores	Pearson Correlation	1	-.316**
	Sig. (2-tailed)		.001
	N	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

The findings of the thesis demonstrated that the clinic with the higher biophilic score had a significant influence on the perceived environmental quality of patients. However, for the mood of the patients, there wasn't a significant difference between the clinics. Results, also, demonstrated a weak correlation between PEQI and POMS instruments.

The next chapter elaborates on the statistical findings of the research by examining the findings in relation to existing literature. Research questions and hypotheses proposed at the beginning of the thesis are also addressed.

CHAPTER 5

DISCUSSION

This chapter discusses the thesis findings and how they relate to the current literature review. This thesis investigated the effect of biophilic design as a salutogenic design method on improving patient's perceived environmental quality and mood in dental clinic waiting rooms. The results indicated that the clinic waiting room with the higher biophilic score had a significant influence on perceived environmental quality but not on the mood of the patients.

The first research question investigated the effect of high biophilic scored waiting rooms on the perceived environmental quality of patients (**RQ1**: Do waiting rooms with a high biophilic score increase the perceived environmental quality of patients?). According to Fornara et al. (2006), enhancing the quality of hospital design characteristics seems to increase patient satisfaction with healthcare settings. Independent t-test and the mean PEQI scores for the clinics were calculated to compare the perceived environmental quality of patients in waiting rooms. The findings demonstrated that perceived environmental quality

was higher in the clinic with the higher biophilic score. The clinic with the high biophilic score was perceived as more *open, colorful, positive, stimulating, large, attractive, relaxed, comfortable, cheerful, good, lively, bright, motivating,* and *pleasant.* These results are aligned with the study of Fornara et al. (2006), which indicates that waiting rooms that are designed with the patients in mind receive a higher overall rating of perceived quality and satisfaction. The hypothesis suggested that the patients perceived environmental quality would be statistically different between the different scored clinics (**H1**: There is a statistically significant difference in patient's perceived environmental quality between the high and low biophilic scored waiting rooms.). Thus, **H1** was not rejected.

The second research question investigated the effect of high biophilic scored waiting rooms on the mood of patients (**RQ2**: Do waiting rooms with a high biophilic score increase the mood of patients?). The results showed that the patients' moods did not vary significantly across clinics, but the mean values of the mood subscales were somewhat higher in the higher scored waiting area. This indicates that the patients' moods were worse in the clinic waiting room with the higher biophilic score, only Fatigue was higher in the lower scored clinic. According to Ulrich (2000), extreme care should be taken when displaying abstract, ambiguous, or challenging art in stressful waiting and treatment areas. Some features of these visuals might significantly affect patient stress and impair other outcomes, even though designers and some healthcare workers

respond favorably to them. Therefore, it can be interpreted as there is a possibility that these results with the patient's moods were caused by the artwork in the clinic since there were some abstract sculptures on the walls and at the entrance of the waiting room in Clinic A. As for the t-test, results indicated that the Vigor was significantly different between clinics, which is the only subscale that represents positive mood. Also, the TMD mean scores were also higher for the clinic with the higher biophilic score. These findings are in contrast to the literature suggesting that mood is affected by the physical environment, especially in healthcare (Alolayyan & Alfaraj, 2021; Emamjomeh et al., 2020; Purani & Kumar, 2018). The hypothesis suggested that the patient's mood would be statistically different between the different scored clinics (**H2**: There is a statistically significant difference in patient's moods between the high and low biophilic scored waiting rooms.). Thus, **H2** was rejected. Additionally, in the descriptive analysis, there was no significant difference in the mood of patients based on age, gender, education, or visiting frequency. These results could be due to the small number of participants. Also, since the waiting time of the patients before their treatment was not considered, it could also affect their mood levels, depending on how long they have waited in the waiting room.

The third research question investigated whether there was a relationship between the instruments, PEQI and POMS (**RQ3**: Is there a relationship between a patient's perceived environmental quality and mood?). In a study by Beukeboom, Langeveld, & Tanja-Dijkstra (2012), the effect of using real plants,

pictures of plants, and not using plants in hospital waiting rooms were compared. The perceived attractiveness of the waiting rooms and POMS scores were also calculated in the study. According to Beukeboom et al. (2012), the evaluated attractiveness of the environment revealed a statistically significant correlation with stress, indicating that greater rated attractiveness of the environment was associated with lower reported stress levels. The results of this thesis were consistent with Beukeboom et al.'s (2012) study, the findings demonstrated a significant correlation between PEQI and POMS instruments. The hypothesis suggested that the instruments, PEQI and POMS would be correlated with each other (**H3**: There is a positive correlation between patient's perceived environmental quality and mood.). Therefore, **H3** was not rejected.

The fourth research question investigated whether patients who visited more frequently had a higher perceived environmental quality (**RQ4:** Does visiting frequency influence the perceived environmental quality of patients?). In the descriptive analysis, there was no significant difference in perceived environmental quality based on age, gender, or education. According to Tsai et al. (2007), gender, age, and visiting frequency were both related to the perception of the environment and the satisfaction with the environment. However, the findings in this thesis showed inconsistency with Tsai et al.'s (2007) study, this could be due to the number of the participants or the number of the waiting rooms assessed. The researchers in Tsai et al.'s (2007) study compared seventeen waiting areas from nine medical specialties and had 680

patients participate in the study. On the other hand, for the relationship between the visiting frequency and the perceived environmental quality, the results showed that there was a significant difference in the perceived environmental quality of patients between the visiting frequencies “every two months” and “less than a year”. This means that patients who visited every two months had higher perceived environmental quality than patients who visited less than once a year. This finding was aligned with Tsai et al.’s (2007) study. The hypothesis suggested that the patients who visited more frequently would have a higher perceived environmental quality (**H4:** Participants who visit dental clinics more frequently have a higher perceived environmental quality.). Thus, **H4** was not rejected.

In sum, the findings of the thesis provide comparative and correlational support for the view that the perceived environmental quality of patients can be influenced by the biophilic design elements in a dental clinic waiting room. However, since the design features were not assessed separately, it is hard to assume which aspect of biophilic design elements was most effective in this analysis. As for the mood of the patients, even though a significant correlation was found between the perceived environmental quality and mood, there was not a correlation between the clinic biophilic scores and the mood of patients. Therefore, this thesis can be adapted to other research using salutogenic design in healthcare environments waiting rooms.

CHAPTER 6

CONCLUSION

This research systematically analyzed the effect of biophilic design as a salutogenic design method on improving a patient's perceived environmental quality and mood in dental clinic waiting rooms. This thesis also investigated the relationships between perceived environmental quality and mood.

The literature suggests that the healthcare environment, specifically the waiting room has an impact on patient's experience and wellbeing (Juliá Nehme et al., 2021; LaVela, Etingen, Hill, & Miskevics, 2016; Tanja Dijkstra & Andrade, 2018). However, the effect of salutogenic design strategies on the patient's perceived environmental quality and mood has not been researched thoroughly, and more information is needed in this field (Salonen et al., 2013a; Tsai et al., 2007). In this respect, this thesis attempted to understand the effect of biophilic design as a salutogenic design method on patient's perceived environmental quality and mood in dental clinic waiting rooms. The results of the research revealed that

when the dental clinic waiting room had a higher score of biophilic design, the perceived environmental quality of patients was higher compared to the clinic with the lower biophilic score. However, the findings suggested that the mood of the patients did not show any significant difference between different scored waiting rooms. Even though the mood scores were not significantly different between the clinic waiting rooms, perceived environmental quality and mood were significantly correlated with each other.

The significance of this thesis lies in the comparison of the dental clinic waiting rooms in terms of different biophilic scores and their effect on patient's perceived environmental quality and mood. The results emphasized the importance of designing waiting rooms with patients in mind. The findings also provided a clear look at the impact of salutogenic design in healthcare environments and the potential the waiting rooms hold. Biophilic design offers a better built environment, one that is more suited to a sustainable future for humans. Since biophilia is a fundamental aspect of human nature, building by its principles assures a far more "natural" outcome (Salingaros, 2019). The built environment is envisioned as an expansion of our biology and ecosystem. Because these biophilic environments make us feel better, we're more likely to keep them in good condition and avoid having to replace them. As a result, biophilic design offers an additional component to the sustainability of the human environment (Salingaros, 2019).

As for the two design theories used in salutogenic healthcare design; Psychosocially Supportive Design and Supportive Design Theory, both of the clinics have some architectural examples of these theories in the waiting rooms. As mentioned in these theories; focusing on lowering anxiety and increasing positive emotions, connection to nature, providing a sense of control, access to social support, and positive distractions are essential components of these theories. The reason Clinic A had a higher score in the Biophilic Healing Index B could be that it had some artwork and plants in the waiting room, and it had a variety of different seating arrangements that could provide socialization or isolation. While Clinic B also had some artwork on the walls, it did not have any plants or greenery in the waiting room. It had fewer options for seating but it should be noted that Clinic B only had a single dentist working in the clinic, so it could be assumed that there would be less people waiting in the waiting room. This could also lead to less socialization but on the other hand, it increases the privacy of the patient.

There are a few limitations of the thesis. First, due to the COVID-19 pandemic, the sample size was lower than expected. Analyzing the effect of biophilic design on patient's moods needs a more comprehensive investigation in larger sample sizes. Also, the type of treatment of the patients was not asked, therefore, the seriousness of their treatment could also affect their perceived environmental quality and mood. Another data that was not collected was waiting time in total and waiting time before answering the questionnaire. It

could also affect the perceived environmental quality and mood of the patients. The number of staff, the square meter of the clinics, and the other patients waiting in the waiting room could also affect the patients. Lastly, the staff and dentist's attitudes and behaviors could also have a significant role in patient’s perceived environmental quality and mood.

Future research could focus on specific design features of salutogenic and biophilic design to see which feature has the most effect on patients. These design features can be both architectural or can be interior design features such as lighting, color scheme, and furnishing. Thus, architects and designers can implement these design features in future clinic waiting rooms to improve the patient experience. Lastly, since the survey was given before the patients received their treatment, future studies could also give another test after the patients received their treatment to compare the results.

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APPENDICES

APPENDIX A

APPROVED ETHICS FORMS BY BILKENT UNIVERSITY

Bilkent Üniversitesi
Akademik İşler Rektör Yardımcılığı

Tarih : 17 Şubat 2021

Gönderilen : Işıl Özgön

Danışman : Yasemin Afacan

Gönderen : H. Altay Güvenir
İnsan Araştırmaları Etik Kurulu Başkanı

Konu : *"The impact of ..."* çalışması etik kurul onayı

Üniversitemiz İnsan Araştırmaları Etik Kurulu, 17 Şubat 2021 tarihli görüşme sonucu, *"The impact of salutogenic design on perceived environmental quality and mood in healthcare environments: a comparative case study in dental clinics."* isimli çalışmanız kapsamında yapmayı önerdiğiniz etkinlik için etik onay vermiş bulunmaktadır. Onay, ekte verilmiş olan çalışma önerisi, çalışma yürütücüleri ve bilgilendirme formu için geçerlidir.

Bu onay, yapmayı önerdiğiniz çalışmanın genel bilim etiği açısından bir değerlendirmedir. Çalışmanızda, kurulumuzun değerlendirmesi dışında kalabilen özel etik ve yasal sınırlamalara uymakla ayrıca yükümlüsünüz.

Kovid-19 salgını nedeniyle konulmuş olan kısıtlamaların yürürlükte olduğu süre içinde, tüm komite toplantıları elektronik ortamda yapılmaktadır; aşağıda isimleri bulunan Bilkent Üniversitesi Etik Kurulu Üyeleri adına bu yazıyı imzalama yetkisi kurul başkanındadır.

Etik Kurul Üyeleri:

Ünvan / İsim	**Bölüm / Uzmanlık**	
Prof.Dr. H. Altay Güvenir	Bilgisayar Mühendisliği	Başkan
Prof.Dr. Erdal Onar	Hukuk	Üye
Prof.Dr. Haldun Özaktaş	Elektrik ve Elektronik Müh.	Üye
Doç.Dr. Işık Yuluğ	Moleküler Biyoloji ve Genetik	Üye
Dr. Öğr. Üyesi Burcu Ayşen Ürgen	Psikoloji	Üye
Doç.Dr. Çiğdem Gündüz Demir	Bilgisayar Mühendisliği	Yedek Üye
Dr. Öğr. Üyesi A.Barış Özbilen	Hukuk	Yedek Üye

Kurul karar/toplantı No: 2021_02_02_02

Bilkent Üniversitesi, 06800 Bilkent, Ankara • Telefon: (312) 290 12 13 • (312) 290 12 14 • Faks: (312) 266 41 52

Bilkent Üniversitesi İnsan Araştırmaları Etik Kurulu Hakkında:

- Kurul aşağıda ünvan, isim, uzmanlık alanı/bölümü belirtilen 5 asli ve 2 yedek üyeden oluşur:

  Prof.Dr. H. Altay Güvenir (Başkan), Bilgisayar Mühendisliği
  Prof.Dr. Erdal Onar, Hukuk
  Prof.Dr. Haldun Özaktaş, Elektrik ve Elektronik Mühendisliği
  Doç.Dr. Işık Yuluğ, Moleküler Biyoloji ve Genetik
  Dr.Öğr. Üyesi. Burcu Ayşen Ürgen, Psikoloji
  Doç.Dr. Çiğdem Gündüz Demir (Yedek Üye), Bilgisayar Mühendisliği
  Dr.Öğr. Üyesi. Arif Barış Özbilen (Yedek Üye), Hukuk

- Kurul toplantılarına katılamayan asli üyelerin yerine yedek üyeler görevlendirilir.
- Kurul en az 3 üye ile toplanabilir.
- Bir başvurunun onay alması konusunda olumsuz oy kullanan üyeler bunu onay belgesindeki isimlerinin yanına muhalefet notu düşerek belirtirler.
- Bir başvurunun onay alabilmesi için en az 3 üyenin olumlu oy kullanması gerekir. Onay belgesinde isimlerinin yanında muhalefet notu bulunmaması, o üyelerin olumlu oy kullandıkları anlamına gelir.

(Form Student_EN*)

Ethics form for graduate and undergraduate students - human participants

Note - group projects fill in one copy with all your names on it. Consult your project supervisor for advice before filling in the form.

Your name(s): Işıl Özgön
Project Supervisor: Assoc. Prof. Dr. Yasemin Afacan

A. Write your name(s) and that of your supervisor above.
B. Read section 2 that your supervisor will have to sign. Make sure that you cover all these issues in section 1. Discuss what you are going to put on the form with your project supervisor.
C. Sign the form and get your project supervisor to complete section 2 and sign the form.

1. Project Outline (to be completed by student(s))

(i) Full Title of Project:

The impact of salutogenic design on perceived environmental quality and mood in healthcare environments: a comparative case study in dental clinics.

(ii) Aims of project:

The aim of this study is to understand if salutogenic design elements in dental clinics affect the perceived environmental quality and mood of the patients.

(iii) What will the participants have to do? (brief outline of procedure; please draw attention to any manipulation that could possibly be judged as deception; ***for survey work, a copy of the survey should be attached to this form*****):**

The experiment will be conducted in the waiting rooms of two selected dentist clinics. The participants of this study will be asked to fill out two questionnaires. The participants will choose a survey method; either with pen & paper or using the QR Code to fill out the online survey. They will be asked to sign a consent form at the beginning of the questionnaire. The questionnaires are Perceived Environmental Quality Index (PEQI) and Profile of Mood States (POMS). Additionally, they will be asked about their demographic information; age, sex, level of education, and visiting frequency. The obtained data from the experiment and questionnaires will be processed by using SPSS software.

(iv) What sort of people will the participants be and how will they be recruited? In the case of children state age range. (*Any participant who has not lived through his/her 18th birthday is considered to be a child!*)

The participants of this study will be volunteers of dental patients in the selected dentist clinics The minimum number of participants will be 30 people who are aged above 18 years old.

*If you are testing children or other vulnerable individuals, state whether all applicants have CRB** clearance*

(v) What sort stimuli or materials will your participants be exposed to? Tick the appropriate boxes and then explain the form that they take in the space below, please draw attention to any content that could conceivably upset your participants).

Questionnaires[x]; Pictures[ ]; Sounds [ ]; Words[ ]; Caffeine[ ]; Alcohol[ ]; Other[ ].

There will be two options for the questionnaire, with QR code (directing to online survey) or with paper. Participants will prefer one method that suits them and fill out the survey that way.

* Adapted from *www.york.ac.uk/depts/psych/www/research/ethics/HumanProjForm.doc*

** Criminal Records Bureau – Please attach relevant clearance documentation.

19/02/21 IŞIL

19/02/21 YA.

(vi) Consent Informed consent must be obtained for all participants before they take part in your project. The form should clearly state what they will be doing, drawing attention to anything they could conceivably object to subsequently. It should be in language that the person signing it will understand. It should also state that they can withdraw from the study at any time and the measures you are taking to ensure the confidentiality of data. If children are recruited from schools you will require the permission of the head teacher, and of parents. Children over 14 years should also sign an individual consent form themselves. When testing children you will also need Criminal Records Bureau clearance. Testing to be carried out in any institution (prison, hospital, etc.) will require permission from the appropriate authority. (Please include documentation for such permission.)

Who will you seek permission from?

Participants' full permission will be obtained prior to the experiment. All participants will be aged aove 18 years old. The dentists of the clinic will provide the permission for the study to take place in their clinics.

Please attach the consent form you will use. Write the "brief description of study" in the words that you will use to inform the participants here.

The experiments have 3 parts. In the first part the participants will be asked about their demographic data. In the second part they will be given some adjectives and asked to assess the waiting room according to these adjectives. In the third part they will be given some feelings/emotions and asked to rate each feeling according to how you are feeling right now.

No personal information will be released at any stage of this research and all their data will be held in confidence by the researcher.

(vii) **Debriefing - how and when will participants be informed about the experiment, and what information you intend to provide? If there is any chance that a participant will be 'upset' by taking part in the experiment what measures will you take to mitigate this?**

Participants will be given a brief about the study prior to the experiment. Then, each participant will be asked to read and sign a consent form, which explains the procedure.

(viii) **What procedures will you follow in order to guarantee the confidentiality of participants' data?** Personal data (name, addresses etc.) should only be stored if absolutely necessary and then only in such a way that they cannot be associated with the participant's experimental data.

All the participants of the study will be asked to sign a consent form to satisfy ethical procedures (See consent form attached). The names of the participants will not be asked at any point of the study. All personal information of participants obtained during the research will be held in confidence by the researcher.

(vii) **Give brief details of other special issues the ethics committee should be aware of.**

(viii) **Tick any of the following that apply to your project**

[ ] it uses Bilkent facilities;
[ ] it uses stimuli designed to be emotive or aversive;
[ ] it requires participants to ingest substances (e.g., alcohol);
[X] it require participants to give information of a personal nature;
[ ] it involves children or other vulnerable individuals;
[ ] it could put you or someone else at risk of injury.

Student's signature: .....Işıl Özgön..... date: .....04.02.20201.....
(all students must sign if this is a group project, please initial all other pages)

The signatures here signify that researchers will conform to the accepted ethical principles endorsed by relevant professional bodies, in particular to

Declaration of Helsinki (WMA):
http://www.wma.net/en/30publications/10policies/b3/index.html

Ethical Principles of Psychologists and Code of Conduct (APA):
http://www.apa.org/ethics/code2002.html

Ethical Standards for Research with Children (SCRD):
http://www.srcd.org/about-us/ethical-standards-research

2. Supervisor's assessment (supervisor to complete - circle yes or no)

Yes I confirm that I have secured the resources required by this project, including any workshop time, equipment, or space that are additional to those already allocated to me.

Yes The design of this study ensures that the dignity, welfare and safety of the participants will be ensured and that if children or other vulnerable individuals are involved they will be afforded the necessary protection.

Yes All statutory, legislative and other formal requirements of the research have been addressed (e.g., permissions, police checks)

Yes - I am confident that the participants will be provided with all necessary information before the study, in the consent form, and after the study in debriefing.

Yes I am confident the participant's confidentiality will be preserved.

Yes I confirm that students involved have sufficient professional competency for this project.

Yes I consider that the risks involved to the student, the participants and any third party are insignificant and carry no special supervisory considerations. If you circle "no" please attach an explanatory note.

No - I would like the ethics committee to give this proposal particular attention. (Please state why below)

Supervisor's signature: .Yasemin Afacan date: ..09/02/2021

Please e-mail an electronic version of this word processed form (without signatures) along with other application material to the committee to start the evaluation process. Paper copies of all application material, (properly signed where indicated, and initialed on all other pages) should be sent after possible modifications suggested by the committee are finalized.

Bilkent University does not allow the use of students of research investigators as participants. Students who have the potential of being graded by the investigators during or following the semester(s) in which the study is being carried out should not participate in the study. Students may not receive any credit for any university course, with the exception of the GE250/GE251 courses, for their participation. The GE250 and GE251 (Collegiate Activities I and II) courses include an optional activity which encompasses volunteering as a participant in a research project.

19/02/21 19/02/21

(Form Staff_EN*)

Staff Application Form for Experiments with Human Participants

(A separate application form must be completed for each experiment and staff member.)

Please check one: ___ *I need a formal approval letter for an external agency (TÜBİTAK, etc.)*

X *An internal communication letter informing me of the approval will be sufficient*

1. Name of applicant (graduate students should indicate their supervisors)

Graduate Student: Işıl Özgön; Supervisor: Assoc. Prof. Dr. Yasemin Afacan

2. Funder of grant/studentship if any:

3. Full title of experiment/project

The impact of salutogenic design on perceived environmental quality and mood in healthcare environments: a comparative case study in dental clinics.

4. When do you wish to start data collection: ____15.02.2021_____

5. Aims of project:

The aim of this study is to understand if salutogenic design elements in dental clinics affect the perceived environmental quality and mood of the patients.

6. What will the participants have to do? (Provide a brief outline of procedure, *for survey work, a copy of the survey should be attached to this form.*) Please indicate if the participants may be exposed to stimuli which may upset them:

The experiment will be conducted in the waiting rooms of two selected dentist clinics. The participants of this study will be asked to fill out two questionnaires. The participants will choose a survey method; either with pen & paper or using the QR Code to fill out the online survey. They will be asked to sign a consent form at the beginning of the questionnaire. The questionnaires are Perceived Environmental Quality Index (PEQI) and Profile of Mood States (POMS). Additionally, they will be asked about their demographic information; age, sex, level of education, and visiting frequency. The obtained data from the experiment and questionnaires will be processed by using SPSS software.

7. What sort of people will the participants be and how will they be recruited? In the case of children state age range. (*Any participant who has not lived through his/her 18th birthday is considered to be a child!*)

The participants of this study will be volunteers of dental patients in the selected dentist clinics. Minimum number of participants will be 30 people who are aged above 18 years old.

I have CRB" clearance yes / no

8. Arrangements for consent and debriefing (attach information sheet and consent form)

Participants will be briefed about the study prior to the experiment. Then, each participant will be asked to read and sign a consent form, which explains the procedure.

9. How will you guarantee confidentiality of participants?

All the participants of the study will be asked to sign a consent form to satisfy ethical procedures (See consent form attached). The names of the participants will not be asked at any point of the study. All personal information of participants obtained during the research will be held in confidence by the researcher.

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* Adapted from *www.york.ac.uk/depts/psych/www/research/ethics/StaffPGEthicsForm.doc*

** Criminal Records Bureau – clearance is required for non-university personnel, including students, for experiments involving children. Please attach relevant documentation.

19/02/21 19/02/21 YA.

10. Please e-mail an electronic version of this word processed form (without signatures) along with other application material to the committee to start the evaluation process. Paper copies of all application material, (properly signed where indicated, and initialed on all other pages) should be sent after possible modifications suggested by the committee are finalized.

Signature(s):

Person carrying out the work

..Işıl Özgön.....

Supervisor, grant holder, or Principal Investigator: I am satisfied that that the procedures adopted will ensure the dignity, welfare and safety of all participants in this work.

...Yasemin Afacan.....

The signature above signifies that researchers will conform to the accepted ethical principles endorsed by relevant professional bodies, in particular to

Declaration of Helsinki (WMA):
https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/

Ethical Principles of Psychologists and Code of Conduct (APA):
http://www.apa.org/ethics/code2002.html

Ethical Standards for Research with Children (SCRD):
http://www.srcd.org/about-us/ethical-standards-research

Bilkent University does not allow the use of students of research investigators as participants. Students who have the potential of being graded by the investigators during or following the semester(s) in which the study is being carried out should not participate in the study. Students may not receive any credit for any university course, with the exception of the GE250/GE251 courses, for their participation. The GE250 and GE251 (Collegiate Activities I and II) courses include an optional activity which encompasses volunteering as a participant in a research project.

19/02/21 19/02/21 YA.

Bilkent University Informed Consent Form

Please fill in the blanks after read the form carefully.

1	**Name and Surname of the participant:** _____
2	**The contact information (adress, e-mail, mobile phone) of the person chosen by the participant in case of any trouble** _____

Name of the Research:

The impact of salutogenic design on perceived environmental quality and mood in healthcare environments: a comparative case study in dental clinics.

The aim, method and the expected benefits of the research

The aim of this study is to understand if salutogenic design elements in dental clinics affect the perceived environmental quality and mood of the patients.

The experiments has 3 parts. In the first part participants will be asked about their demographic data. They will not be asked about their name in any stage of the survey. In the second part they will be given some adjectives and asked to assess the waiting room according to these adjectives. In the third part they will be given some feelings/emotions and asked to rate each feeling according to how they are feeling right now. All questionnaires were adapted from the literature and they were modified according to the study. No significant risks is foreseen to threat the participants of this study.

Part A

A1	The participants have the right to terminate their participation in the research at any time without any explanation or the participants could be omitted if the researcher finds it necessary.
A2	Participants' decisions to not to volunteer or terminate being part of the research will not influence the nature of the ongoing relationship they may have with the researchers, the involved faculty members, and the nature of their relationship with Bilkent University either now, or in the future.
A3	No personal information will be released at any stage of this research and all the personal data will be held in confidence by the researcher.
A5	The information participants' supply, which are directly related to the research, may be published for academic purposes. However, the participants will not be identified and the personal results will remain confidential.
A6	Participants will be chosen from people who are dentist patients in the clinics.

Part B – Signatures

B1 The Participant

I am _____
I have understood the nature of this project and wish to participate. My signatue below indicates my consent.

Signature: **Date:**

B2 The Researcher

I am **Işıl Özgön**
I explained the aim, the method and the expected benefits of this research to the perticipant and I admit to preserve the confidentiality of given infomation by the participant and the results of the research.

Signature: _____ **Date:** _____

9/02/21

02/02/2021

Öğrenci ismi: Işıl Özgön

Tez Danışmanı: Doç. Dr. Yasemin Afacan

Tez Başlığı: The Impact of Salutogenic Design on Perceived Environmental Quality and Mood in Healthcare Environments: A Comparison Case Study in Dental Clinics.

(Salutojenik Tasarımın Sağlık Mekanlarındaki Algılanan Mekansal Kalite ve Ruh Hali Üzerindeki Etkisi Üzerine Karşılaştırmalı Bir Çalışma)

Öğrencinin 15 Şubat 2021 – 15 Mart 2021 tarihleri arasında anket çalışmasını bu klinikte yapması uygundur.

Adı Soyadı: Prof. Dr. Yalın Çiftçi

İmzası:

19/02/21 19/02/21

02/02/2021

Öğrenci ismi: Işıl Özgön

Tez Danışmanı: Doç. Dr. Yasemin Afacan

Tez Başlığı: The Impact of Salutogenic Design on Perceived Environmental Quality and Mood in Healthcare Environments: A Comparison Case Study in Dental Clinics.

(Salutojenik Tasarımın Sağlık Mekanlarındaki Algılanan Mekansal Kalite ve Ruh Hali Üzerindeki Etkisi Üzerine Karşılaştırmalı Bir Çalışma)

Öğrencinin 15 Şubat 2021 – 15 Mart 2021 tarihleri arasında anket çalışmasını bu klinikte yapması uygundur.

Adı Soyadı: Dt. Suat Halil Atar

İmzası:

APPENDIX B

SURVEY (ENGLISH)

BIOPHILIC DENTAL CLINIC FORM

Part 1 - Demographic Data

1. Age

( )

2. Gender

Female ( ) Male ( )

3. Education

Elementary ( ) High school ( ) Undergraduate ( ) Graduate ( ) Post Graduate ( )

4. What is your visit frequency?

Once a month ( ) Once every two months ( ) Once every six months ( ) Once a year ( )
Less than once a year ( )

Part 2 - Perceived Environmental Quality Index (PEQI)

Please evaluate adjective pairs about the perception of the environment you are in right now.

EXAMPLE: Closed	○	○	○	○	X	○	○	Open
Closed	○	○	○	○	○	○	○	Open
Drab	○	○	○	○	○	○	○	Colorful
Negative	○	○	○	○	○	○	○	Positive
Boring	○	○	○	○	○	○	○	Stimulating
Small	○	○	○	○	○	○	○	Large
Unattractive	○	○	○	○	○	○	○	Attractive

Tense	○	○	○	○	○	○	○	Relaxed
Uncomfortable	○	○	○	○	○	○	○	Comfortable
Depressing	○	○	○	○	○	○	○	Cheerful
Bad	○	○	○	○	○	○	○	Good
Unlively	○	○	○	○	○	○	○	Lively
Dull	○	○	○	○	○	○	○	Bright
Unmotivating	○	○	○	○	○	○	○	Motivating
Unpleasant	○	○	○	○	○	○	○	Pleasant

Part 3 - Profile of Mood States (POMS)

Please answer this part with regards to your overall satisfaction level with the waiting area and the questionnaire that you answered in Part 2.

Below is a list of words that describe feelings people have. Please circle the number that best describes how you feel RIGHT NOW.

	Not At All	A Little	Moderately	Quite A Lot	Extremely
1. Tense	○	○	○	○	○
2. Angry	○	○	○	○	○
3. Peeved	○	○	○	○	○
4. Unhappy	○	○	○	○	○
5. Lively	○	○	○	○	○

	Not At All	A Little	Moderately	Quite A Lot	Extremely
6. Confused	○	○	○	○	○
7. Sad	○	○	○	○	○
8. Active	○	○	○	○	○
9. On-Edge	○	○	○	○	○
10. Energetic	○	○	○	○	○
11. Hopeless	○	○	○	○	○
12. Uneasy	○	○	○	○	○
13. Restless	○	○	○	○	○
14. Unable to Concentrate	○	○	○	○	○
15. Fatigued	○	○	○	○	○
16. Blue	○	○	○	○	○
17. Annoyed	○	○	○	○	○
18. Discouraged	○	○	○	○	○
19. Resentful	○	○	○	○	○
20. Nervous	○	○	○	○	○
21. Miserable	○	○	○	○	○
22. Cheerful	○	○	○	○	○
23. Bitter	○	○	○	○	○
24. Exhausted	○	○	○	○	○
25. Anxious	○	○	○	○	○
26. Helpless	○	○	○	○	○

	Not At All	A Little	Moderately	Quite A Lot	Extremely
27. Weary	○	○	○	○	○
28. Grovely	○	○	○	○	○
29. Bewildered	○	○	○	○	○
30. Furious	○	○	○	○	○
31. Full of Pep	○	○	○	○	○
32. Worthless	○	○	○	○	○
33. Forgetful	○	○	○	○	○
34. Vigorous	○	○	○	○	○
35. Uncertain about things	○	○	○	○	○
36. Bushed	○	○	○	○	○
37. Worn out	○	○	○	○	○

APPENDIX C

SURVEY (TURKISH)

BİYOFİLİK İÇ MEKAN DEĞERLENDİRME FORMU

1. Kısım

1. Yaşınız:

( )

2. Cinsiyetiniz:

Kadın ( ) Erkek ( )

3. Eğitim seviyeniz:

İlkokul ( ) Lise ( ) Üniversite ( ) Yüksek Lisans ( ) Doktora ( )

4. Ziyaret Sıklığınız?

Ayda bir ( ) İki ayda bir ( ) Altı ayda bir ( ) Yılda bir ( ) Yılda birden daha az ( )

2. Kısım

Aşağıda 14 adet değerlendirme cümlesi bulunmaktadır. Lütfen şuanda oturduğunuz bekleme alanını aşağıdaki sıfatlar ile değerlendiriniz.

ÖRNEK: Kapalı	◯	◯	◯	◯	X	◯	◯	Açık
Kapalı	◯	◯	◯	◯	◯	◯	◯	Açık
Donuk	◯	◯	◯	◯	◯	◯	◯	Renkli
Negatif	◯	◯	◯	◯	◯	◯	◯	Pozitif
Sıkıcı	◯	◯	◯	◯	◯	◯	◯	Merak Uyandırıcı
Küçük	◯	◯	◯	◯	◯	◯	◯	Büyük
Çekici olmayan	◯	◯	◯	◯	◯	◯	◯	Çekici

Gerici	◯	◯	◯	◯	◯	◯	◯	Rahatlatıcı
Rahatsız	◯	◯	◯	◯	◯	◯	◯	Rahat
İç karartıcı	◯	◯	◯	◯	◯	◯	◯	Neşeli
Kötü	◯	◯	◯	◯	◯	◯	◯	İyi
Cansız	◯	◯	◯	◯	◯	◯	◯	Canlı
Donuk	◯	◯	◯	◯	◯	◯	◯	Parlak
Motive edici olmayan	◯	◯	◯	◯	◯	◯	◯	Motive edici
Hoş olmayan	◯	◯	◯	◯	◯	◯	◯	Hoş

3. Kısım

Lütfen bu kısmı Kısım 2'de yanıtladığınız anketten ve klinik bekleme alanından genel memnuniyet düzeyinize göre yanıtlayınız.

Aşağıda insanların sahip olduğu duygu ya da hisleri tanımlayan kelimelerin bir listesi bulunmaktadır. Lütfen her bir kelime için **ŞU AN** nasıl hissettiğinizi en iyi tanımlayan daireyi işaretleyiniz.

	Asla	Çok Az	Orta Derecede	Oldukça Fazla	Aşırı
1. Gergin	○	○	○	○	○
2. Öfkeli	○	○	○	○	○
3. Hırçın	○	○	○	○	○
4. Mutsuz	○	○	○	○	○
5. Hayat Dolu	○	○	○	○	○

	Asla	Çok Az	Orta Derecede	Oldukça Fazla	Aşırı
6. Şaşkın	○	○	○	○	○
7. Mahzun	○	○	○	○	○
8. Aktif	○	○	○	○	○
9. Sabırsız	○	○	○	○	○
10. Çalışkan	○	○	○	○	○
11. Umutsuz	○	○	○	○	○
12. Huzursuz	○	○	○	○	○
13. Hareketsiz Duramayan	○	○	○	○	○
14. Konsantre olamama	○	○	○	○	○
15. Yorgun	○	○	○	○	○
16. Hüzünlü	○	○	○	○	○
17. Usanmış	○	○	○	○	○
18. Cesaretsiz	○	○	○	○	○
19. Gücenmiş	○	○	○	○	○
20. Sinirli	○	○	○	○	○
21. Zavallı	○	○	○	○	○
22. Neşe Saçan	○	○	○	○	○
23. Acı Duyan	○	○	○	○	○
24. Tükenmiş	○	○	○	○	○
25. Sıkıntılı	○	○	○	○	○
26. Yardımsız	○	○	○	○	○

	Asla	Çok Az	Orta Derecede	Oldukça Fazla	Aşırı
27. Bezgin	○	○	○	○	○
28. Ciddi	○	○	○	○	○
29. Şaşırmış	○	○	○	○	○
30. Kızgın	○	○	○	○	○
31. Enerji Dolu	○	○	○	○	○
32. Değersiz	○	○	○	○	○
33. Unutkan	○	○	○	○	○
34. Dinç	○	○	○	○	○
35. Her şeyle ilgili şüpheci	○	○	○	○	○
36. Ne yapacağını bilemeyen	○	○	○	○	○
37. Yıpranmış	○	○	○	○	○

APPENDIX D

CLINIC A PHOTOS

Figure 14. Waiting room (taken by the author, 2022).

Figure 15. Waiting room (taken by the author, 2022).

Figure 16. Waiting room (taken by the author, 2022).

Figure 17. The reception desk and the entrance to the treatment area (taken by the author, 2022).

Figure 18. Restroom entrance (taken by the author, 2022).

Figure 19. Restroom cabins (taken by the author, 2022).

Figure 20. Women’s cabins (taken by the author, 2022).

Figure 21. Wash basin, the disabled restroom, and the entrance of the restroom (taken by the author, 2022).

APPENDIX E

CLINIC B PHOTOS

Figure 22. Waiting room (taken by the author, 2022).

Figure 23. Waiting room (taken by the author, 2022).

Figure 24. Waiting room (taken by the author, 2022).

Figure 25. Waiting room (taken by the author, 2022).