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The Impact of Lighting Design in terms of a Salutogenic Approach on Health and Well-Being: A Case Study in a Coffee House

Salutojenik Yaklaşım Açısından Aydınlatma Tasarımının Sağlık ve İyi Oluş Üzerindeki Etkisi: Bir Kahve Evinde Vaka Çalışması

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ABSTRACT

Individuals spend more time in interiors, which affects their comfort, health, and well-being. It is known that coffee houses, which are increasing rapidly in line with various needs, are preferred for socializing and working in a new world. Creating a well-designed environment also positively impacts an individual's social, psychological, and behavioral patterns. In this case, a salutogenic design creates interior environments promoting health and well-being. It is an evidence-based design strategy for improving human comfort, health, and well-being, including all environmental quality factors, such as natural and artificial lighting, color, acoustic, and thermal comfort. The lighting design can improve our performance, mood, focus, and overall well-being in an interior environment. A salutogenic design model, which is most prevalent in healthcare and workplace design and is supported by over three decades of research in the medical and design fields, provides an innovative design strategy to aid in comfort, health, and well-being. Based on this perspective, this study evaluates the health and well-being of the users in the selected coffee house with a salutogenic design approach by considering artificial lighting design. The differences between genders, age groups, and the adjectives measuring positive and negative subjective moods, and the correlation between the SOC-13 Scale and the Perceived Environmental Quality Index were analyzed. The "Results" section provides a thorough explanation of the test findings. While this study serve as an example of how individuals' moods, feelings, health, and well-being can be linked to physical conditions in the space, it will also provide a better understanding of how a salutogenic design approach can be incorporated into coffee shops to improve user experience in various of aspects.

Keywords: Interior environment, coffee house, health and well-being, lighting, salutogenic approach.

ÖZ

Bireylerin iç mekânlarda daha fazla zaman geçirmesi, onların konforunu, performansını, sağlığını ve refahını etkilemektedir. Çeşitli ihtiyaçlar doğrultusunda sayıları hızla artan kahve evlerinin yeni dünyada sosyalleşmek ve çalışmak için tercih edildiği bilinmektedir. İyi tasarlanmış bir ortam yaratmak, bireyin sosyal, psikolojik ve davranışsal örüntülerini de olumlu yönde etkilemektedir. Bu durumda, salutojenik bir tasarım, sağlığı ve iyi oluşu teşvik eden iç ortamlar yaratmaya odaklanmaktadır. Doğal ve yapay aydınlatma, renk, akustik ve termal konfor gibi tüm çevresel kalite faktörleri dahil olmak üzere insan konforunu, sağlığını ve refahını iyileştirmek için kanıta dayalı bir tasarım stratejisidir. Aydınlatma tasarımı, kapalı bir ortamda performansımızı, ruh halimizi, odaklanmamızı ve genel refahımızı artırabilir. Sağlık ve ofis tasarımı alanlarında en yaygın olan, tıp ve tasarım alanlarında otuz yılı aşkın bir süredir devam eden araştırmalarla desteklenen salutojenik tasarım modeli, konfor, sağlık ve esenliğe yardımcı olmak için yenilikçi bir tasarım stratejisi sunmaktadır. Bu bakış açısına dayanan bu çalışma, yapay aydınlatma tasarımını göz önünde bulundurarak seçilen kahve evindeki kullanıcıların sağlık ve iyi oluşunu salutojenik bir tasarım yaklaşımıyla değerlendirmektedir. Cinsiyetler, yaş grupları ve pozitif ve negatif öznel ruh hallerini ölçen sıfatlar arasındaki farklar ve SOC-13 Ölçeği ile Algılanan Çevresel Kalite Endeksi arasındaki korelasyon analiz edildi. "Sonuçlar" bölümü test bulgularının kapsamlı bir açıklamasını sunmaktadır. Bu çalışma bireylerin ruh hallerinin, hislerinin, sağlıklarının ve iyi oluşlarının mekandaki fiziksel koşullarla nasıl ilişkilendirilebileceğine dair bir örnek teşkil ederken, aynı zamanda kullanıcı deneyimini çeşitli yönlerden iyileştirmek için salutojenik bir tasarım yaklaşımının kahve evlerine nasıl dahil edilebileceğinin daha iyi anlaşılmasına olanak sağlayacaktır.

Anahtar Kelimeler: İç mekân, kahve evi, sağlık ve iyi oluş, aydınlatma, salutojenik yaklaşım.

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Introduction

Interior architecture is concerned with the design of interiors and how they affect the individuals who live, work, and play in them. Human behavior and the interior environment are currently the key areas of investigation. It is considered that a place improves life experiences and that design has the potential to offer opportunities for gathering and interaction. As the designer experiences the space, their ability to make human-centric design expands. Environmental and behavioral researchers investigate how the design of the interior environment affects individuals and their quality of life (Scott, 1989). An interior architect ensures that individuals and their physical environments work well together. To achieve this purpose, individuals designing the space must understand how they behave in different surroundings. Creating a practical and visually appealing workplace promotes a positive attitude and will likely contribute to health and well-being, but this requires knowledge and experience.

Many scholars believe that human-environment interactions are transactional, with the individual influencing the environment and the environment affecting the individual. Both the individual and the environment influence the experience. Garner (2015) stated that coffee shops offer clients a conversational avenue, a basic time limit, and a congregational purpose. These psychological and physiological benefits have also been observed in some groups that use a coffee shop as a gathering place to socialize and form a community with reciprocating social relationships (Gorman et al., 2018). Furthermore, Sandstrom and Dunn (2014) discovered that even brief interactions between coffee shop customers and employees have a beneficial social impact on its participants. Creating successfully designed places necessitates understanding user needs, behavior, and skills. To create places that encourage gathering, it is understood why individuals gather, the benefits of gathering, and what design elements in the interior environment support them gathering. Lighting plays a crucial role in the built environment, significantly impacting the visual comfort of its occupants. Factors such as light intensity, illuminance levels and uniformity, correlated color temperature (CCT), brightness distribution, glare, and the availability of natural daylight all contribute to this comfort. Light not only allows individuals to perceive their surroundings and distinguish colors and shapes but also shapes how they experience and interact with the environment. As a result, enhancing visual comfort has been a prominent research focus in this field. Lighting quality is critical in places where food is served, such as restaurants, cafes, canteens, and cafeterias. There needs to be more illuminance levels and low-quality lighting due to poor color rendering, and glare can lead to unpleasant situations if individuals cannot see their food and drink. On the other hand, proper lighting at a food service facility can help maintain an atmosphere, appeal to the food being provided, and attract more individual's attention. In contemporary times, coffee shops have evolved beyond their traditional purpose and are now recognized as versatile public spaces catering to diverse groups. The range of activities in coffee shops today includes enjoying coffee or other refreshments, hosting business meetings, engaging in discussions, celebrating special occasions, working, studying, and casual socializing or hanging out. Among these, three key activities— (1) working or studying, (2) meetings and discussions, and (3) socializing or hanging out—serve as focal points for examining the connection between artificial lighting and visitor behavior. Coffee houses are more than just places to get a cup of coffee; they are also places to socialize and relax. Many individuals seek refuge and peace in coffee houses, using them as coping mechanisms to alleviate stress and improve overall health and well-being. Oldenburg (1999a) defined these places as third places and further explained that they are not home or work but the places that help get them through the day. Oldenburg describes the third place as "a generic designation for a great variety of public places that host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work." Third places provide a place to connect with the individuals in communities as well as a place to exchange ideas and news. These gathering places, with the potential to enhance the community in this manner, have been called third places. Coffee houses provide a one-of-a-kind setting that can aid in coping and mental well-being. Oldenburg's (1999) notion of "third place" proposes that coffee houses function as visitors to coffee houses and employ various coping mechanisms, such as generating a relaxing ambiance through sensory involvement. Coffee houses serve as a vital psychological retreat, allowing individuals to disengage from the pressures and responsibilities of their daily lives. They offer a transition from work to relaxation, creating a separate space where individuals can mentally step away from their professional roles. This change fosters rest, rejuvenation, and the employment of coping strategies. According to boundary theory, such transitional spaces act as buffers, helping individuals manage multiple roles and reducing stress's negative impact on their health and well-being (Clark, 2000).

Coffee houses give sensory experiences such as the lighting design, furniture, the sounds of brewing coffee, views of the surrounding cityscape, and the presence of electronic devices, all of which contribute to health and well-being (Jang & Lee, 2019; Spence et al., 2014). Light, like thermal, acoustic, and air quality components, is important to the interior environment. Its quality is reflected in the visual comfort of any environment's individuals, which is influenced by light-related variables such as light intensity, illuminance and uniformity, correlated color temperature (CCT), brightness distribution, glare, and daylight availability (Carlucci et al., 2015; Avcı & Memioğlu, 2021; Avcı & Akbay, 2022). Light allows individuals to comprehend their surroundings and discern colors and shapes. Lighting is an important part of indoor environmental quality that can influence a person's health and well-being.

A Salutogenic Approach

Health promotion research and studies are no longer exclusive to medicine and psychology. According to research, the built environment and urban lifestyles are major markers of health and quality of life in modern societies (Andrade et al., 2016; Dushkova & Ignatieva, 2020). Creating a research field on the impact of lighting on an individual's health and well-being sparks a discussion of the interior environment from several angles. To do this, salutogenic design is one way to evaluate interior lighting from various perspectives. In recent years, salutogenic design has gained prominence in interior design. This strategy focuses on improving health and well-being rather than avoiding and treating disease. Salutogenesis, which translates to "the origins of health," was introduced in 1979 by the medical sociologist Aaron Antonovsky (Antonovsky, 1996). Antonovsky suggested that actions and studies aimed at enhancing health and well-being should be driven by a guiding theoretical framework, proposing the concept of a "salutogenic orientation" to fulfill this role. According to his perspective, the human body, like all biological systems, is inherently imperfect, susceptible to inevitable decay processes, and ultimately bound by mortality (Antonovsky, 1996). Since death is an unavoidable reality, Antonovsky argued that the focus should be on supporting individuals in achieving overall

health and well-being rather than merely concentrating on preventing illness. He also emphasized that healthcare practitioners should consistently adopt a holistic approach, addressing the entire person rather than narrowly targeting specific diseases (Antonovsky, 1996). Consequently, embracing a salutogenic perspective centers on actively fostering health and wellness as a central aspect of life. Antonovsky's salutogenic approach (1987, 1996) serves as the theoretical, conceptual, and value-based framework for current health promotion. Health promotion is the practice of empowering individuals to gain control and enhance their health. It is critical to provide adequate environments that encourage healthy activities. Salutogenic orientation favors factors that promote health and well-being above lower-risk factors. The salutogenic method hypothesizes what is good for health and how to improve an individual's situation. It has also been used in workplace health promotion, both physically and psychologically (Hanson, 2007). The salutogenic paradigm can be applied to various industries, including architecture, by developing salutogenic design concepts. Salutogenic design is a comprehensive concept for constructed environments derived from salutogenesis and commonly used in healthcare settings. Other forms of architecture, such as offices, retail spaces, and educational contexts, have lately investigated the use of design principles to enhance health (Roskams & Haynes, 2020; Yeang & Dilani, 2022). Salutogenic design stresses excellent practices that increase people's sense of coherence. As far as it is known, the salutogenic approach to workplace (re)design and development remains a fresh topic. Sense of coherence (SOC) is an important notion that informs the salutogenic approach to health promotion and workplace design (Antonovsky, 1987; 1996). SOC was compared to other standardized measures used in empirical investigations to assess criteria validity. The results are summarized below: The factors considered include health, perceptions of self and environment, stressors, quality of life and well-being, and attitudes and actions (Eriksson & Lindström, 2005). In practice, it allows a person to perceive the environment as intellectually and emotionally coherent. For example, environmental stimuli may be received as information rather than noise. A SOC is a disposition toward understanding the environment as comprehensive, manageable, and meaningful (Antonovsky, 1987; 1996). Comprehensibility refers to the perception that the world is understandable, meaningful, ordered, and consistent rather than chaotic, random, and unpredictable. Comprehensibility can also refer to an individual's sense of predictability and security, the extent to which the environment is understandable, and environments that communicate their intended use and differences between different workspace types through color-coding or using various materials and furniture. Manageability is the realization that the resources required to meet demand are available. Increasing functionality is part of the designer's role in improving manageability and control in an interior space. Meaningfulness is an emotional experience of life that makes sense and requires acceptable coping mechanisms. It is the degree to which individuals believe life makes meaning emotionally and something worth engaging in or committing to (Antonovsky, 1996).

Aim and Originality of the Study

Until now, few research have focused on salutogenic workplace features (such as colors, plants, and views outside). Some studies have examined how lighting can improve well-being using a salutogenic paradigm (Golembiewski, 2010). In contrast, most studies concentrate on indoor environmental quality (IEQ) factors such as noise, air quality, and temperature (Bergefurt et al., 2022). Studies also concentrate on the pathogenic approach, which investigates how low-lighting design impacts health in terms of the salutogenic design approach. The salutogenic approach is most commonly associated with productivity, concentration, stress, and mood. Salutogenic research has previously highlighted the relevance of reducing demands and increasing resources in the physical and non-physical settings in which we live and work (Roskams & Haynes, 2020; Heerwagen et al., 1995). While existing research frequently focuses on healthcare, the office, or residential settings, there is a notable lack of research into the impact of lighting in promoting well-being in communal spaces such as community centers, schools, and public areas. Although lighting design has been studied in interior architecture, an integrated salutogenic approach that combines health sciences, psychology, and design principles is still relatively uncommon. There is still a need for quantitative and qualitative data demonstrating how different lighting strategies (e.g., natural vs. artificial, color temperature, intensity) impact social interaction and mental well-being (Salonen et al., 2013; Boubekri et al., 2014). The interior architect should organize spatial attributes in such a way that requirements are decreased while resources are raised. The aim of this study is to present and describe a model analysis that takes into account the key spatial design elements that influence and produce the most significant salutogenic outcomes. This research proposes and summarizes a model analysis that investigates the key spatial design factors that influence the most significant salutogenic results. These findings are critical for providing a healthy coffeehouse experience, particularly in coffee shops with so many options. While previous studies focus on productivity or clinical health outcomes, this study examines social well-being and interaction in designed environments. It also aims to promote the development of salutogenic environments instead of solely "efficient" interior environments. This objective will enhance human health and significantly improve human-centric lighting design approaches.

Method

Participants

The study was carried out with the voluntary participation of students from different faculties who were present at the Arabica Coffe House during the experiment. A total of thirty-four participants volunteered. 16 male and 18 female participants were students from various faculties of the Çankaya University, Ankara, Türkiye. The participants' ages ranged from 21 to 37, with a mean age of 24.09 (SD = 0.49). All the participants were Turkish living in Ankara, Türkiye. Three participants said they visited the chosen cafe once a week, three more than once a week, and 28 once a month (SD = 0.66). The question prepared by a 7-point Likert scale was how much they knew about salutogenic design; they generally knew very little (SD = 1.11).

Experimental Setting

Arabica Coffee House, one of the pioneers of the coffee sector that is growing and gaining importance in our country, was formed in 2014 based on the passions of the owners and creating a concept they would love in all aspects. Arabica Coffee House has 110 branches in 35 cities across Türkiye, including one near the library building of Çankaya University. Locating at the intersection of many buildings on campus makes it a place frequently used by many students. The experiment was conducted in the interior of Arabica Coffee House at Çankaya University. The coffee house was 124.89 m^2 and included a coffee

preparation area, a sitting area, a kitchen, and wet areas. An extension featuring a 65 m^2 made by a glass pergola with an automatic awning system was added to the project to increase seating space. Brown tones are generally preferred for the table covering material, cash, coffee preparation area, and floor covering material. The back wall of the coffee preparation area has a wall covering made of biscuit bricks in the same tones, while the rest are white, and the entrance right wall is black. Figures 1-4 present the schematic plan and photographs of the coffee house.

Figure 1-4. Photographs of the Arabica Coffee House (Author Archieve)

Experimental Instruments and Procedure

This study was prepared with the approval of the Çankaya University Science and Engineering Sciences Scientific Research and Publication Ethics Committee dated 06.09.2024 and numbered E-80281877-050-160252. This study applied three questionnaires to evaluate general lighting in terms of health and well-being with a salutogenic design approach. Before them, some demographic questions were used, such as gender, age, class, visit frequency of the coffee house, and knowledge about a salutogenic design approach. Firstly, "The Positive and Negative Affect Schedule (PANAS)" has a 7-point scale with values ranging from 'one' (very slightly, not at all) to 'seven' (extremely). Watson et al. (1988) were adopted to assess the general lighting conditions in an interior coffee environment. This scale is one of the scales used to measure the subjective mood. PANAS consists of 20 items. These 20 items cover the evaluation of 10 positive and 10 negative moods out of 5. Positive mood scales are interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active; negative mood scales are distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid. Secondly, the Perceived Environmental Quality Index (PEQI) by Fisher (1974) was utilized. PEQI has fourteen bipolar adjectives, conveying either positive or negative perceptions of the surrounding environment with a 7-point scale. The bipolar adjectives are closed-open, drab-colorful, negative-positive, boring-stimulating, small-large, unattractive-attractive, tense-relaxed, uncomfortable-comfortable, depressing-cheerful, bad-good, unlively-lively, dull-bright, unmotivated-motivating, unpleasant-pleasant. Thirdly, Antonovsky's SOC scale is the most commonly used method for measuring sense of coherence. The original instrument contained 29 components with seven-point response scales. The SOC scale now has two versions: 29 items and 13 items. The shorter items are a selection of 13 items from the 29-item version. The questionnaire also included the 13-item SOC scale, which assessed comprehensibility (5 items), manageability (4 items), and meaningfulness (4 items). The items are shown in Table 1.

Table 1. The Sense of Coherence (SOC-13) Scale Items

Item	Question	Dimension
1	Do you have the feeling that you do not really care about what goes on around you?	Me
2	Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?	C
3	Has it happened that people whom you counted on disappointed you?	Ma
4	Until now your life has had:	Me
5	Do you have the feeling that you're being treated unfairly?	Ma
6	Do you have the feeling that you are in an unfamiliar situation and don't know what to do?	C
7	Doing the things, you do every day is:	Me
8	Do you have very mixed-up feelings and ideas?	C
9	Does it happen that you have feelings inside you would rather not feel?	C
10	Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?	Ma
11	When something happened, have you generally found that:	C
12	How often do you have the feeling that there's little meaning in the things you do in your daily life?	Me
13	How often do you have feelings that you're not sure you can keep under control?	Ma

C: Comprehensibility , **Ma:** Manageability, **Me:** Meaningfulness

Thirty-four volunteered participants were invited to the coffee house environment according to the prescheduled timetable. They were said to sit wherever they wanted in the environment. The participant was then seated in an armchair and

allowed to place their laptop on the table. First, they were briefed on the research objectives and ethical considerations. Access to the Google Survey designed for the study was then granted. It consisted of 52 questions. The first five questions were related to the gender, age, class, visit frequency of the coffee house, and knowledge about a salutogenic design approach. The other 47 questionnaires comprised the Positive and Negative Affect Schedule (PANAS), Perceived Environmental Quality Index (PEQI), and SOC-13 Scale. They were required to describe their feelings according to the adjectives of the PANAS Test. The Perceived Environmental Quality Index was asked to evaluate the general lighting conditions of the coffee house. Finally, they replied to the SOC-13 Scale to explain the environment as comprehensive, manageable, and meaningful. Participants left the coffee house after completing the process.

Results

IBM SPSS Statistics 23.0 software was used to assess data normality. Mean and standard deviation statistics were used to make observations about the distribution of the items. The results indicated that the scale scores followed a normal distribution. The analysis was conducted using parametric approaches. An independent samples t-test was used to evaluate the participants' moods between sample groups using the PANAS test and the PEQI based on the coffee house's lighting conditions regarding a salutogenic design approach. Bivariate Correlation Analysis was applied to investigate the relationship between the SOC-13 Scale and the PEQI.

Accordingly, the differences between genders, age groups, and the adjectives measuring positive and negative subjective moods were analyzed. The participants tended to rate negative adjectives positively and positive adjectives negatively. Independent samples t-test was also utilized to investigate the relationship between age groups. The results indicated statistically significant differences between the groups for five adjectives which were "distressed" (t (32) = 2.414, p = 0.022), "proud" (t (32) = -2.151, p = 0.039), "inspired" (t (32) = -2.417, p = 0.022), "determined" (t (32) = -2.424, p = 0.021), and "attentive" (t (32) = -2.005, p = 0.053). When the mean values of these five adjectives were examined, participants aged 25-30 felt more positively than another group except "distressed." Table 2 presents the results.

Independent samples t-test was utilized to investigate the relationship between gender groups. The results indicated statistically significant differences between the gender groups for an adjective, which was "distressed" (t (32) = -2.677, p = 0.012). In the PANAS test, which included an adjective to assess positive mood, the mean values indicated that the female participants exhibited low levels of positive mood. Table 3 presents the results.

The Perceived Environmental Quality Index (PEQI) was based on the coffee house's lighting conditions in terms of a salutogenic design approach. Results indicated no statistically significant differences between the groups for the bipolar adjective scales. Analysis of the mean values revealed that male participants assessed the interior lighting slightly more favorably than female participants. When the differences between different age groups were evaluated, it was found that there was a significant difference only in terms of "positive-negative" adjectives (t (32) = 3.055, p = 0.005). The mean values indicated that participants aged 18 to 24 considered interior lighting better than those aged 25-30. According to Tsai et al. (2007), gender and age were both related to the perception of the environment.

Table 2. Positive and Negative Affect Schedule (PANAS) Results (Age Groups)

Independent Samples t-Test

Adjective	t	df	Sig. (2-tailed)
Distressed	2.414	32	.022
	2.653	29.205	.013
Proud	-2.151	32	.039
	-1.978	17.976	.063
Inspired	-2.417	32	.022
	-2.078	15.175	.055
Determined	-2.424	32	.021
	-2.123	15.864	.050
Attentive	-2.005	32	.053
	-1.870	18.653	.077

Bivariate Correlation Analysis was applied to investigate the relationship between the SOC-13 Scale questions and adjectives of the Perceived Environmental Quality Index. A positive correlation was identified between specific questions and the bipolar adjective scales. There was a correlation between the "unattractive-attractive" and "unpleasant-pleasant" adjective scales with the first SOC-13 scale question (r = 0.391, p = 0.022; r = 0.408, p = 0.017). The first question explores an individual's emotional disengagement or detachment from their surroundings. It seeks to assess whether the individual feels indifferent, disconnected, or uninterested in events or situations happening around them.

Individuals experiencing apathy or emotional detachment might view stimuli as unattractive or unpleasant simply because they lack engagement or emotional investment. The second question correlated with "tense-relaxed" adjectives (r = 0.428, p = 0.012). The second question explores instances where someone experienced unexpected or uncharacteristic behavior from people they believed they understood well. It delves into the themes of trust, perception, and relationships and could serve various purposes. In general, it can be concluded that the interior lighting of the coffee house is not intriguing and interesting for the participants. The sixth question showed a strong correlation with the "drab-colourful" (r = 0.481, p = 0.004) and a significant correlation with the "unattractive-attractive" adjective scale (r = 0.408, p = 0.017). The sixth question, "Do you have the feeling that you are in an unfamiliar situation and don't know what to do?" is related to feelings of uncertainty, confusion, or lack of preparedness. It could be associated with various contexts, including psychological assessment, problem-solving or coping strategies, foreign language learning, teaching and learning contexts, general counseling or support. In addition, the tenth question correlated with "uncomfortable-comfortable" adjectives (r = 0.406, p = 0.017). This question, "Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?" is related to self-esteem, self-perception, and emotional well-being. There was also a strong correlation between eleventh question and "drab-colourful" adjective scale (r = 0.442, p = 0.009). The twelfth question is the meaning of an individual's sense of purpose, fulfillment, and satisfaction in their daily activities. There were correlations between this question

and “drab-colourful” and “boring-stimulating” (r = 0.427, *p* = 0.012; r = 0.371, *p* = 0.031); a strong correlation between “uncomfortable-comfortable” adjectives (r = 0.578, *p* = 0.000). The thirteenth question is for an individual’s emotional regulation and self-control perception. There were also positive correlations with “negative-positive,” “boring-stimulating,” and “tense-relaxed” (r = 0.384, *p* = 0.025; r = 0.352, *p* = 0.041; r = 0.412, *p* = 0.016) and a strong correlation with “small-large” adjective scales (r = 0.543, *p* = 0.001). Table 4 presents the Correlations between the SOC-13 Scale questions and adjectives of the Perceived Environmental Quality Index.

Table 3. Positive and Negative Affect Schedule (PANAS) Results (Gender Groups)

Independent Samples t-Test

Adjective	t	df	Sig. (2-tailed)	Adjective	t	df	Sig. (2-tailed)
Interested	-.962	32	.343	Irritable	-1.151	32	.258
	-.959	31.02	.345		-1.149	31.39	.259
Distressed	-2.677	32	.012	Alert	1.128	32	.268
	-2.637	28.18	.013		1.123	30.96	.270
Excited	.083	32	.935	Ashamed	-.709	32	.484
	.082	31.16	.935		-.687	23.05	.499
Upset	-.696	32	.491	Inspired	-.559	32	.580
	-.687	28.72	.498		-.565	31.90	.576
Strong	-.546	32	.589	Nervous	-.151	32	.881
	-.558	30.24	.581		-.153	31.55	.879
Guilty	-1.121	32	.271	Determined	-.774	32	.445
	-1.086	23.07	.289		-.790	30.31	.435
Scared	.061	32	.952	Attentive	.016	32	.987
	.061	32.00	.951		.016	31.06	.987
Hostile	-.966	32	.341	Jittery	-.628	32	.535
	-.933	22.09	.361		-.626	31.19	.536
Enthusiastic	-.106	32	.916	Active	-.538	32	.594
	-.107	31.97	.915		-.545	31.75	.590
Proud	-.634	32	.531	Afraid	-.538	32	.594
	-.648	29.97	.522		-.530	28.29	.600

However, no negative correlation was found in the results, and no correlations were identified between the six bipolar adjective scales (uncomfortable-comfortable, depressing-cheerful, bad-good, unlively-lively, dull-bright, and unmotivated-motivated) of the PEQI and the six questions of the SOC-13 scale. It was also discovered that the bipolar adjective scale "drab-colorful" had a stronger correlation with the items on the SOC-13 scale than the other adjective scales, with a particularly strong correlation with two specific questions diemnsioned as comprehensibility. Comprehensibility can also refer to an individual’s sense of predictability and security, the extent to which the environment is understandable, and environments that communicate their intended use and differences between different workspace types through color-coding or using various materials and furniture. The correlation between the 13th question and this adjective scale has been proven to be correct. Moreover, as the findings were analyzed, it was shown that the 13th question had correlations with the adjective scales more than other questions. A high frequency of feeling emotionally out of control is likely associated with more negative, positive, boring, stimulating, tense, and relaxed. In addition, the coffee house’s overall lighting, whether boring or lively, appeared to significantly affect participants more. They expressly stated that they considered it uninteresting. This shows that using more inventive lighting fixtures could improve the coffee house's visual appeal and overall well-being.

Table 4. Correlations between the SOC-13 Scale Questions and Adjectives of the Perceived Environmental Quality Index (PEQI)

Bivariate Correlation		
SOC-13 Scale Question	Dimension	PEQI Adjective Scale
1	Me	unattractive-attractive unpleasant-pleasant
2	C	tense-relaxed
6	C	drab-colourful unattractive-attractive
10	Ma	uncomfortable-comfortable
11	C	drab-colourful
12	Me	drab-colourful boring-stimulating
13	Ma	negative-positive boring-stimulating tense-relaxed small-large

C: Comprehensibility , **Ma:** Manageability, **Me:** Meaningfulness

Conclusion

This study evaluates the health and well-being of the users in the selected coffee house, combined with a salutogenic design approach. Additionally, it aims to analyze the general lighting conditions. Creating interior environments promoting health and well-being is crucial for enhancing public health outcomes, and using evidence-based practices will lead to better design. The salutogenic design offers a robust theoretical framework for contemporary health promotion and practice, with the flexibility to address the unique requirements of various settings. This approach enhances the interior environment and aligns with health-promoting policies, laying the groundwork for interior health and well-being. Salutogenic design should be adopted as a guiding principle throughout the entire design process, from conception to completion, for all interior spaces. It requires consideration of physical and psychological factors essential for effective analysis and design methods. The development of modern coffee shops provides its customers with unique and essential amenities. Many pre-office or intra-office activities, such as casual meetings and work, can now be carried out in locations other than their authorized spaces, such as coffee shops. As a result, coffee shops are increasingly regarded as appropriate public spaces for various activities ranging from socializing to working. Various activities necessitate different lighting designs and standards to meet the user's desire for a comfortable and functional space. The users feel their impacts and are consciously or unconsciously reflected, one example being how the user selects the activity location within the coffee shop. Understanding the association between artificial lighting and visitor activity location can be important when planning and researching coffee shops. Coffee houses are not only locations to get a cup of coffee but also places to relax, socialize, and deal with life's difficulties. Sensory engagement, visit length, and the general coffee environment contribute to an individual's emotional relaxation, health, and well-being. By exploiting these insights, coffee house managers can create more appealing spaces that promote good coping techniques, improving their individuals' health and well-being.

Further study is needed to corroborate these findings in different settings and investigate the long-term impact of coping strategies in coffee house scenarios. However, the effect of salutogenic design approach on the perceived environmental quality has not been researched thoroughly, and more information is needed in this field. The outcomes of this study also lead to a better understanding of how to incorporate a salutogenic design approach into coffee houses to enhance the user experience in various aspects.

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