

Article

Exploring Customer Behavior in Shopping Malls: A Study of Rest Areas in Dubai, United Arab Emirates

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Abstract: The city of Dubai has a population of 3.34 million and boasts 65 shopping malls, with an additional 10 currently under construction. As a result of the oppressive climate, shopping malls have emerged as de facto community centers and public squares where Dubai residents can congregate, socialize, and participate in various events. This paper aims to examine the spatial features of indoor and outdoor rest areas within Dubai's shopping malls and identify key factors that can enhance user satisfaction in each area. To achieve this, literature studies were conducted to extract evaluation factors, such as comfort, aesthetics, convenience, and accessibility for rest areas adjacent to the escalator, restroom, open corridor, and outdoor locations. An empirical study was then carried out, where field observations and user-satisfaction surveys were conducted in the indoor and outdoor rest areas of three prominent malls, namely the Dubai Mall, Dubai Festival City, and Mirdif City Center. The results of the study indicate that in open-corridor rest areas, easy access was highly rated in the satisfaction survey, while noise and privacy maintenance received lower ratings. Comparatively, outdoor rest areas scored higher on the satisfaction survey than indoor rest areas, such as the rest area next to the escalator, open-corridor rest area, and rest area next to the bathroom. This study's findings can provide a foundation for future rest-area planning that better reflects the needs and desires of users.



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Keywords: rest area; shopping mall; customer behavior; user satisfaction; interior design

1. Introduction

The current population of Dubai stands at 3.34 million, and the city boasts 65 shopping malls, with 10 more currently under construction [1,2]. Upon completion, Dubai Square in Dubai Creek Harbor will be the world's largest shopping mall [3] (Figure 1). Due to the sweltering hot weather, Dubai residents spend more than 90% of their time indoors [4]. Especially during the long summer months from April through to October, temperatures can soar up to 48 °C with high humidity, making it unbearable to enjoy outdoor activities for more than a few minutes [5,6]. As a result, shopping malls have become de facto community centers and public squares where people gather, enjoy, and experience social events [7]. However, Dubai's reliance on shopping malls is not solely due to the weather; the city is also shifting towards the hospitality industry and away from its reliance on oil [8,9]. Currently, Dubai is the fourth most visited city in the world, with 16.7 million visitors annually [10]. The Dubai Municipality aims to become the world's most popular tourist destination by 2025 [11,12]. The Dubai Mall, which had an average of 20 million visitors annually over the past four years, is the most visited mall globally, according to EMAAR's statistics [13].



Figure 1. “The Boulevard” at Dubai Square, currently under construction (source: Dubai Holdings).

In today’s diverse and complex global cities, consumers demand an active and pleasant environment [14]. Commercial architecture, such as that of shopping malls, plays a crucial role in selling and distributing products and mediating cultural and social activities [15]. Therefore, shopping malls are evolving into multi-functional spaces where people can enjoy life, culture, and leisure, and fulfill various life’s needs [16,17]. To meet consumers’ evolving needs, shopping-mall spaces are being adapted and having their image enhanced; the rest area is one such space. The rest area is a convenient facility that has an impact on the shopping mall’s perception, as it is a free, high-quality service facility accessible to all customers [18,19]. This space stimulates the desire to purchase by increasing user satisfaction beyond the simple pleasure of shopping [20,21]. For consumers, it serves as a place of communication, while, for companies, it increases profits and enhances the shopping mall’s appeal [22,23]. This study aims to investigate the spatial characteristics of indoor and outdoor rest areas in Dubai shopping malls and identify critical factors that enhance user satisfaction for each area. Through literature studies and empirical surveys conducted at the Dubai Mall (Figure 2), Dubai Festival City (Figure 3), and Mirdif City Center (Figure 4), the study identifies the essential elements of indoor and outdoor rest areas that can have an impact on user satisfaction. The study’s findings will provide valuable insights into rest-area planning that reflect user needs and preferences in the future.

Indoor rest areas are commonly found in shopping malls adjacent to escalators, restrooms, open corridors, or outdoor areas [24,25]. Moreover, as the demand for outdoor resting spaces, such as small parks in the city, is actively reflected, shopping malls increasingly provide outdoor or rooftop spaces as rest areas [26]. Hence, they are trying to offer indoor and outdoor rest areas with diverse functions and designs [27]. However, no comprehensive studies have investigated indoor and outdoor rest areas, and research that specifically analyzes the relationship between their characteristics and consumer satisfaction is insufficient [28]. Thus, this study aims to investigate the factors of indoor and outdoor rest areas in shopping malls and identify the essential characteristics of each rest area that can enhance user satisfaction.



Figure 2. The rest area in Dubai Mall (source: by the authors).



Figure 3. The rest area in Dubai Festival City (source: by the authors).

To achieve this, this study used literature and empirical studies to analyze the characteristics of rest areas located inside and outside shopping malls, and to evaluate user satisfaction [29]. Firstly, a literature review was conducted to investigate the concept, function and role, classification, components, and characteristics of the rest area in shopping malls. Then, by setting the attributes of the rest area, evaluation factors and detailed evaluation contents were extracted and specified so that the characteristics of each indoor and outdoor rest area could be evaluated [30,31].



Figure 4. The rest area in Mirdif City Center (source: by the authors).

Secondly, in the empirical study, field and user-satisfaction surveys investigated the status of the shopping mall's rest area. The empirical research scope focused on a shopping mall with indoor and outdoor rest areas. Three shopping malls that opened within the past 10 years—Dubai Mall, Dubai Festival City, and Mirdif City Center—were selected as examples [32].

By analyzing the relationship between the characteristics of the rest area and user satisfaction, the attributes of the rest area were proposed to enhance the satisfaction of shopping-mall users [33,34]. This primary data can be used for user-centered rest-area planning, with the aim of suggesting improvements to provide a pleasant and comfortable rest area to shopping-mall users [35].

2. Materials and Methods

2.1. The Customer-Behavior Theory

The research is anchored in a solid theoretical foundation provided by Bitner's Servicescape Model and the Stimulus–Organism–Response (S–O–R) Model, both of which are instrumental in examining customer behavior in relation to the physical environment and interior design of shopping malls. The Servicescape Model, central to the analysis and observation, allows the authors to systematically evaluate how various aspects of rest areas, such as ambient conditions, spatial layout, and design elements, can influence customer attitudes and behaviors [36].

Complementing this, the research engages with the S–O–R Model, a core concept in environmental psychology. It offers a valuable lens through which to understand how the environmental stimuli presented by rest areas provoke emotional states in consumers that, in turn, influence their behavior. The 'stimulus' includes all environmental cues present in rest areas, the 'organism' represents the internal emotional states of customers that are evoked by these stimuli, and the 'response' indicates the customers' subsequent behaviors, such as their willingness to stay longer, revisit, or recommend the shopping mall [37].

By fusing these theories, the research aims to unveil the characteristics of rest areas that enhance user satisfaction, thereby providing a comprehensive theoretical backdrop for assessing the implications of rest-area design and atmosphere in shopping malls.

2.2. The Concept of Rest Area

A rest area is a customer-service facility that is established within the commercial sector with the primary purpose of organizing activities aimed at providing a means of rest

to customers [38]. Serving as a convenience facility, the rest area offers ancillary benefits that cause shopping to be a more pleasant experience for customers. In addition, it provides emotional and psychological satisfaction to users [39]. Despite the small size of the rest areas in shopping malls, they offer a wide range of services to customers, making them a hub where people can interact with each other. On the other hand, a shopping mall is a space designed to enable customers to visit and rest while shopping easily [40]. It achieves this by providing a rest area, offering information on products in the store, and creating an atmosphere that naturally leads to purchases.

2.3. The Function and Role of the Rest Area

The rest area within a shopping mall is not solely a place for customers to rest, but it also serves as a space for social interaction and cultural experiences [41]. Given its importance, changes to the rest area within a shopping mall can significantly enhance customer satisfaction, the desire to purchase, and overall enjoyment of the shopping experience [42]. The rest area performs several critical functions that contribute to this outcome, including:

1. Rest and conversation: The rest area provides basic facilities, such as chairs and sofas where customers can sit and relax, increasing their comfort level and time spent in the store;
2. Meeting and waiting: The rest area provides a space where customers can wait for appointments and meetings with acquaintances;
3. Food and beverage: Depending on the customer's preferences, the rest area can also serve as a place for simple meals or drinks;
4. Information exchange: The rest area functions as a space for brand communication and interaction between the customers and the brand, enabling the collection of customer information through electronic technology;
5. Events and play: The rest area also serves as a space for fashion shows and other events;
6. Appreciation: Customers who use the rest area do not just utilize the space but also appreciate and remember the design and atmosphere of the area. Hence, if the rest area is symbolically and impressively designed, it can enable customers to understand the idea behind the space;

In summary, the rest area within a shopping mall is a crucial aspect of customer service, providing various functions that increase customer satisfaction, desire to purchase, and overall enjoyment of the shopping experience.

2.4. The Characteristics of the Rest Area

Providing a rest area within a shopping mall can significantly enhance customer satisfaction by offering a space for relaxation and high-quality services [43]. Consequently, it is essential to investigate the current features of the rest area within shopping malls, the level of satisfaction among customers, and areas for potential improvement. Previous research analyzing the characteristics of rest areas in shopping malls has yielded valuable insights, summarized in Table 1 below.

Table 1. Previous research on the characteristics of rest areas in a commercial complex (source: by the authors).

Researchers	Topics	Characteristics
Kim and Runyan, 2011 [35]	Improvement of the rest area in a shopping mall	Authenticity, comfort, and convenience
Juhari et al., 2012 [44]	Composition of the rest-area environment considering user satisfaction	Convenience, comfort, and aesthetics
Rousseau and Venter, 2014 [45]	Characteristics of public-space planning for the elderly	Publicity, continuity, accessibility, connection, and placeness
Ortegón-Cortázar and Royo-Vela, 2017 [41]	Effects of design and eco-natural environment on intention to visit	Accessibility, comfort, awareness, openness, connectivity, and symbolism
Warnaby and Medway, 2018 [46]	Design components of a rest area in a shopping mall	Aesthetics, accessibility, perception, stability, and comfort
Calvo-Porral and Lévy-Mangín, 2018 [47]	Satisfaction level of use of outdoor-recreation areas Pull factor	Connectivity, convenience, accessibility, comfort, and aesthetics

The rest-area characteristics synthesized in each of the six selected studies were derived from previous research on rest-area features. These studies identified aesthetics, territoriality, accessibility, cognition, stability, comfort, connection, convenience, publicity, continuity, spatiality, openness, and symbolism as critical features of rest spaces [48,49]. This study specifically focused on four characteristics—comfort, aesthetics, convenience, and accessibility—which were identified with high frequency as significant factors. The meaning of each characteristic is summarized below.

1. **Comfort:** This characteristic considers the inflow of natural light, lighting, noise, and ventilation facilities essential for providing a pleasant atmosphere that can cause users to be physically and mentally comfortable;
2. **Aesthetics:** This characteristic involves creating a psychologically relaxed environment in the rest area by introducing natural elements, spatial structure, design, and color. Aesthetics can add the function of appreciation to the rest area;
3. **Convenience:** Convenience and ancillary facilities that meet users' needs should be provided. The plan should consider the space's area and width to ensure walking is not inconvenient and the furniture is arranged to be used conveniently and work comfortably, even for people with disabilities and elderly;
4. **Accessibility:** This characteristic emphasizes efficient access in a shopping mall, linkage with other surrounding spaces, easy user access, and installation of information boards to enable use and privacy protection.

2.5. Selection of Target Shopping Malls and Analysis Methods

This study evaluated the characteristics of rest areas by conducting on-site surveys of indoor and outdoor rest areas in shopping malls and investigating user satisfaction with these areas through a user survey [50,51]. The shopping malls selected for the field survey were Dubai Mall, Dubai Festival City, and Mirdif City Center, which opened within the last 10 years and had both indoor and outdoor rest areas [52]. Male and female users in their 20s to 50s who were using the rest areas in these malls were included in the survey, with a total of 160 participants (40 people × 4 age groups) interviewed.

To comprehensively understand the characteristics of the studied areas, an observational study was conducted based on the characteristics evaluation tool of indoor and outdoor rest areas [53]. A primary survey was carried out after the preliminary survey was revised and supplemented to ensure the general public could easily understand the

survey [54]. Customers who were using the rest area during the survey were included in the primary survey, with users randomly selected from those who belonged to the designated age group and consented to participate in the study. A total of 160 copies were distributed and collected from July to December 2022 from Dubai Mall, Dubai Festival City, and Mirdif City Center, with 158 copies used for the final analysis after excluding two copies with insincere responses. The collected data were analyzed using IBM SPSS Statistics 26 [55].

To evaluate the general spatial characteristics of the rest areas, a survey tool was developed through the following process, as shown in Figure 5.

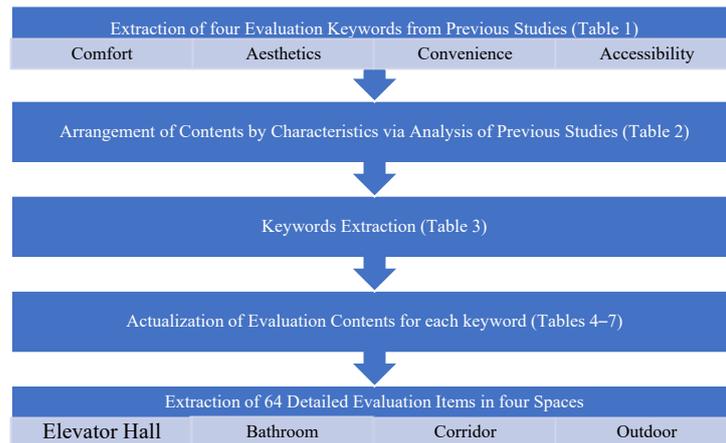


Figure 5. The investigation-tool construction process (source: by the authors).

To investigate the theoretical characteristics of the shopping-mall rest area, this study analyzed previous research and constructed an evaluation tool based on the contents of earlier studies that mentioned the features of the rest area. Four characteristics of comfort, aesthetics, convenience, and accessibility were identified, as shown in Table 2 [56,57].

Table 2. Contents of spatial characteristics of rest areas in previous studies (source: by the authors).

Spatial Characteristics	Contents of Previous Studies
Comfort	<ul style="list-style-type: none"> Natural lighting inflow Introduction of natural light from ceilings and side windows Blocking external noise with walls Characteristics that sufficiently consider the sound-absorption effect IAQ regarding ventilation facilities and finishing materials Use of a light source with a warm lighting color similar to that of an incandescent lamp rather than a cold-colored fluorescent lamp
Aesthetic	<ul style="list-style-type: none"> Indirect introduction of natural elements and digital video images of nature Utilization of landscaping (plants, trees, and stones) elements in consideration of the environment, such as differentiated space structure, finishing materials, colors, lighting, decorations (pictures, and picture frames) Sightseeing/event elements, sculptures, and viewing elements, such as a waterfall and a fountain Design elements, such as wall sculptures, super graphics, and landscaping elements, such as plants and water Consideration of color combination of warm colors considering the psychological state of users
Convenience	<ul style="list-style-type: none"> Arrangement of various pieces of furniture Securing seating distance/finishing materials considering the elderly and the disabled Securing a location and sufficient area, and width Barrier-free design that considers distance calculation, comfort, naturalness, or other environmental conditions for easy adaptation to the elderly and disabled Provision of general convenience facilities, such as water purifiers and trash bins, as well as convenient facilities, such as computers and ATMs Easy access to entry and exit
Accessibility	<ul style="list-style-type: none"> Provide an easily accessible space without physical and visual obstacles Space composition for the degree of movement and physical connection of two or more spaces Placement of guide signs and guidance signs in appropriate places for passages and open spaces Installation of the information desk and attached information board The seating-arrangement pattern is structured in the direction of maintaining a smooth flow of internal circulation and securing individual areas Temporary wall-light boundary-frame composition at the boundary to maintain privacy

The spatial characteristics of the rest area were further analyzed by dividing them into indoor and outdoor factors, and keywords were extracted from the above to reflect the items present in the rest area [58] (Table 3).

Table 3. Evaluation items for spatial characteristics of indoor and outdoor rest areas (source: by the authors).

Characteristics	Escalator Area (E)	Bathroom (B)	Corridor (C)	Outdoor (O)	Evaluation Content
Comfort	ECF-1	BCF-1	CCF-1	OCF-1	Natural light inflow
	ECF-2	BCF-2	CCF-2	OCF-2	Artificial lighting
	ECF-3	BCF-3	CCF-3	OCF-3	Noise reduction (Outdoor: shades)
	ECF-4	BCF-4	CCF-4	OCF-4	Ventilation (Outdoor: scenery)
Aesthetic	EAE-1	BAE-1	CAE-1	OAE-1	Introduction of natural elements
	EAE-2	BAE-2	CAE-2	OAE-2	Design elements (Outdoor: events)
	EAE-3	BAE-3	CAE-3	OAE-3	Spatial composition (Outdoor: fountain/waterfall)
	EAE-4	BAE-4	CAE-4	OAE-4	Color
Convenience	ECV-1	BCV-1	CCV-1	OCV-1	Area and width of space
	ECV-2	BCV-2	CCV-2	OCV-2	Convenient facilities
	ECV-3	BCV-3	CCV-3	OCV-3	Furniture arrangement
	ECV-4	BCV-4	CCV-4	OCV-4	Safe floor material
Accessibility	EAC-1	BAC-1	CAC-1	OAC-1	Privacy protection
	EAC-2	BAC-2	CAC-2	OAC-2	Easy access
	EAC-3	BAC-3	CAC-3	OAC-3	Connection with surroundings (Outdoor: circulation)
	EAC-4	BAC-4	CAC-4	OAC-4	Installation of signage

Regarding indoor-rest-area characteristics, comfort includes factors such as inflow of natural light, lighting that reduces eye fatigue, noise reduction, and ventilation facilities [59]. Aesthetics encompassed elements such as the use of natural components such as plants, stones, and water, design features that elevate the aesthetic quality of the space, and appropriate structure and color composition for the area [60]. Convenience was defined by factors such as the area and width of the space to prevent obstacles, installation of comfort and ancillary facilities, furniture arrangement suited for the space, and safe flooring material [61]. Accessibility was identified by factors such as privacy protection for maintaining personal space, easy access to rest areas, connections to surrounding areas such as retail spaces, circulation areas, and walkways, and installation of information and guidance signs in rest areas [62]. The outdoor rest area's comfort was defined by factors such as natural light inflow, lighting that enables use at night, shade control suitable for rest, and exterior views. Additionally, aesthetics included introducing various natural elements, spectacles, and events for visual enjoyment using outdoor rest areas, sculptures, fountains or waterfalls, and natural colors. Convenience was determined by securing the size and width to avoid inconvenience for strollers and wheelchairs, installing convenient and ancillary facilities, arranging furniture suitable for the space, and ensuring floor safety.

Accessibility included privacy protection for maintaining personal space, ease of access, connections with indoor spaces, identifying movement lines and directions, and installation of information boards.

The identified keywords defined specific evaluation contents for each characteristic, focusing on the essential contents for each indoor and outdoor rest area [63]. It was recognized that rest areas had different characteristics and visit purposes, and, thus, the evaluation tool was configured differently for each rest area. As shown in Table 4, it was determined that each rest-space plan required a different evaluation approach, resulting in the derivation of 64 detailed evaluation items across four evaluation categories (comfort, aesthetics, convenience, and accessibility) for four rest-space types (next to the escalator area, next to the bathroom area, open corridor, and outdoor) [64–66].

Table 4. Evaluation items for spatial characteristics of four rest areas (source: by the authors).

Characteristics		Evaluation Items
Escalator Area	Comfort	ECF-1 There is natural light.
		ECF-2 Relieves eye fatigue by using warm colors and incandescent lamps.
		ECF-3 There is a wall to separate the space from the sales space for noise reduction.
		ECF-4 A sound ventilation system maintains a pleasant air environment.
	Aesthetic	EAE-1 The atmosphere is well created by introducing natural elements (plants, etc.).
		EAE-2 LED and picture frames are installed as a design element.
		EAE-3 A differentiated zone is designed for the characteristics of each zone.
		EAE-4 It is composed of colors considering the primary age group for each zone.
	Convenience	ECV-1 It is convenient for passage by securing sufficient area and width.
		ECV-2 Amenities such as water dispensers, trash cans, and ATMs are provided.
		ECV-3 It provides a convenient space with a suitable furniture arrangement.
		ECV-4 Barrier-free design is applied.
	Accessibility	EAC-1 The arrangement of furniture and sculptures maintains privacy.
		EAC-2 There are no physical or visual obstacles for easy accessibility.
		EAC-3 Other spaces (elevator, corridor, and sales space) are accessible.
		EAC-4 Escalator area signs are installed throughout the passage for easy way-finding.
Bathroom	Comfort	BCF-1 There is natural light.
		BCF-2 Relieves eye fatigue by using warm colors and incandescent lamps.
		BCF-3 The noise is well insulated by maintaining a distance from other spaces.
		BCF-4 A sound ventilation system maintains a pleasant air environment.
	Aesthetic	BAE-1 The atmosphere is well created by introducing natural elements (plants, etc.).
		BAE-2 LED and picture frames are installed as a design element.
		BAE-3 The rest facilities are suitable for the size of the shopping mall.
		BAE-4 Relieves visual fatigue with the warm color combination.
	Convenience	BCV-1 It is convenient for passage by securing sufficient area and width.
		BCV-2 A diaper-changing table is provided in the bathroom.
		BCV-3 You can sit and relax with chairs and stools for a quick rest.
		BCV-4 The floor is rendered safe by using a non-slip finish.
	Accessibility	BAC-1 The arrangement of furniture and sculptures maintains privacy.
		BAC-2 There are no physical or visual obstacles for easy accessibility.
		BAC-3 Other spaces (elevator, corridor, and sales space) are accessible.
		BAC-4 Directional signs are located where anyone can easily see them.

Table 4. Cont.

Characteristics		Evaluation Items	
Open Corridor	Comfort	CCF-1	There is natural light.
		CCF-2	Reduces eye fatigue by using indirect lighting without glare.
		CCF-3	There is a wall to separate the space from the sales space for noise reduction.
		CCF-4	A sound ventilation system maintains a pleasant air environment.
	Aesthetic	CAE-1	The atmosphere is well created by introducing natural elements (plants, etc.).
		CAE-2	LED and picture frames are installed as a design element.
		CAE-3	A differentiated zone is designed for the characteristics of each zone.
		CAE-4	It is composed of colors considering the primary age group for each zone.
	Convenience	CCV-1	There is enough space to sit for rest.
		CCV-2	Amenities such as water dispensers, trash cans, and ATMs are provided.
		CCV-3	It provides a convenient space with a suitable furniture arrangement.
		CCV-4	Barrier-free design is applied.
	Accessibility	CAC-1	The arrangement of furniture and sculptures maintains privacy.
		CAC-2	The circulation is designed for easy access.
		CAC-3	Other spaces (elevator, corridor, and sales space) are accessible.
		CAC-4	Guide signs are installed in the corridor.
Outdoor	Comfort	OCF-1	There is sufficient natural light.
		OCF-2	It is well-lit, so it is convenient to use at night.
		OCF-3	Some of the ceilings are shaded and suitable for rest.
		OCF-4	It has lovely scenery with an open view.
	Aesthetic	OAE-1	The atmosphere is well created by introducing natural elements (plants, etc.).
		OAE-2	There are enough outdoor-event elements.
		OAE-3	It provides visual and auditory pleasure with sculptures, fountains, and waterfalls.
		OAE-4	It is composed of natural colors that relieve fatigue.
	Convenience	OCV-1	Sufficient space is secured for the passage of strollers, wheelchairs, etc.
		OCV-2	Amenities such as water dispensers, trash cans, and ATMs are provided.
		OCV-3	There is enough furniture to give you a rest.
		OCV-4	Appropriate steps are provided so that walking is not obstructed.
	Accessibility	OAC-1	Privacy is maintained by the arrangement of furniture to keep personal distance.
		OAC-2	The circulation is designed for easy access.
		OAC-3	It is well connected to the indoor space.
		OAC-4	Guide signs are installed in the outdoor space.

3. Results

A survey was conducted to evaluate and analyze the spatial characteristics of the shopping-mall rest area based on the detailed evaluation items derived from the previous stage. The questionnaire was constructed using a five-point Likert scale [67], and the validity and consistency of each item in the questionnaire collected through the survey were checked by calculating Cronbach's α value [68] to verify the reliability of the measurement for each factor [69]. Generally, a reliability coefficient α value of 0.6 or higher is recognized as indicating no problem with the reliability of the measurement index. As the reliability coefficient for all items ($\alpha = 0.93$) and each factor derived in this study is 0.6 or higher, the reliability level is deemed satisfactory [70–72].

The survey was conducted on 158 people, of whom 53 were from Dubai Mall (33.5%), 54 were from Dubai Festival City (34.2%), and 51 were from Mirdif City Center (32.3%). The survey respondents comprised 46.8% male and 53.2% female, with a slightly higher

percentage of females (7%). In terms of age group, 40 respondents (25.3%) were in their 20s, 30s, and 40s, while 38 respondents (24.1%) were in their 50s (Table 5).

Table 5. General information of survey participants (source: by the authors).

Classification	Shopping Malls				
	Dubai Mall	Dubai Festival City	Mirdif City Center	Total	
Gender	Male	22 (41.5%)	26 (48.1%)	23 (45.1%)	71 (44.9%)
	Female	31 (56.5%)	28 (51.9%)	28 (54.9%)	87 (55.1%)
	Total	53 (100%)	54 (100%)	51 (100%)	158 (100%)
Age Group	20–29	16 (30.2%)	12 (22.2%)	12 (23.5%)	40 (25.3%)
	30–39	12 (22.6%)	15 (27.8%)	13 (25.5%)	40 (25.3%)
	40–49	12 (22.6%)	15 (27.8%)	13 (25.5%)	40 (25.3%)
	50–59	13 (24.5%)	12 (22.2%)	13 (25.5%)	38 (24.1%)
	Total	53 (100%)	54 (100%)	51 (100%)	158 (100%)

3.1. Evaluation of the Rest Area Being Next to the Escalator

The provision of natural light is crucial for creating a comfortable environment in escalator areas, as these spaces generally lack top lighting, such as open corridors. The research findings indicate that users' satisfaction with the natural light in Dubai Mall was the highest at 3.04 (1.00) in the ECF-1 item, followed by Dubai Festival City 2.48 (0.84) and Mirdif City Center 2.67 (0.89) ($p < 0.01$). Despite the absence of windows, users reported that the lack of natural light in the escalator area was due to the secured space and lighting effect (Table 6).

Table 6. Evaluation of the rest area being next to the escalator (source: by the authors).

Rest Area Next to the Escalator	Dubai Mall		Dubai Festival City		Mirdif City Center		Total		F-Test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Comfort	ECF-1	3.04	1.00	2.48	0.84	2.67	0.89	2.73	0.94	5.151 **
	ECF-2	3.45	0.87	3.04	0.89	3.18	1.03	3.22	0.94	2.752
	ECF-3	3.41	0.88	3.47	0.77	3.53	0.76	3.47	0.80	0.364
	ECF-4	3.28	0.91	3.89	0.91	3.61	0.89	3.58	0.92	6.035 **
Aesthetic	EAE-1	2.85	0.77	3.78	0.90	3.25	0.84	3.30	0.92	16.378 ***
	EAE-2	3.64	0.82	3.02	0.85	3.84	0.91	3.49	0.93	13.090 ***
	EAE-3	3.57	0.75	3.63	0.81	3.69	0.86	3.63	0.80	0.207
	EAE-4	3.53	0.74	3.78	0.76	3.45	0.90	3.49	0.81	2.368
Convenience	ECV-1	3.68	0.91	3.70	0.90	3.69	0.94	3.69	0.92	0.011
	ECV-2	3.55	0.91	3.82	0.88	4.14	0.99	3.84	0.96	5.207 **
	ECV-3	3.01	0.99	4.06	0.96	3.14	1.02	3.41	1.09	17.846 ***
	ECV-4	2.71	0.91	3.42	1.14	2.27	0.96	2.81	1.11	17.272 ***
Accessibility	EAC-1	3.03	0.90	3.63	0.83	3.02	0.80	3.23	0.89	8.923 ***
	EAC-2	3.26	0.92	3.85	0.94	3.45	0.94	3.53	0.96	5.512 **
	EAC-3	3.81	0.77	3.38	0.79	3.57	0.87	3.59	0.83	3.213 *
	EAC-4	2.85	0.82	3.39	0.88	2.63	0.93	2.96	0.93	10.517 ***
Total	3.27	0.87	3.54	0.87	3.33	0.91	3.38	0.88		

S.D. (standard deviation), * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regarding aesthetics, introducing natural elements was found to require revision. The score for the opening of natural elements (EAE-1) was lowest in Dubai Mall, consistent with the absence of natural elements in the escalator area during the field survey ($p < 0.001$). However, the overall results were above average in the EAE-2 category related to installing

decorative design elements. Compared to Dubai Mall and Mirdif City Center, Dubai Festival City was evaluated as relatively low, indicating a significant difference ($p < 0.001$). Wall frames, giant LED screens, and photo zones were used as decorative design elements in Dubai Mall and Mirdif City Center. In contrast, decorative design elements, except for natural elements, were not installed in the rest area of the escalator area in Dubai Festival City.

In terms of convenience, the provision of convenience facilities and ancillary facilities in the escalator area was rated the highest. All shopping malls received scores above average in the ECV-2 category. Trash cans and water dispensers were provided in all malls, and ATMs and customer centers were provided on some floors, considering the leading customer group. Dubai Festival City was evaluated as above average in the ECV-4 category for barrier-free design, while Dubai Mall and Mirdif City Center received a low score of three points (normal). However, all shopping malls were found to comply with the regulations of Dubai Municipality, and the result is considered a subjective design evaluation by users ($p < 0.001$).

Regarding accessibility, users highly evaluated the connection between other spaces and circulation. The review of the sign indicating the rest area was the lowest. The EAC-3 item, related to circulation to other spaces, received an above-average rating overall, with Dubai Mall receiving the highest score ($p < 0.05$). The movement line from the sales space to the elevator and from the escalator area rest area was found to be naturally connected (Figure 6). Regarding the EAC-4 item for rest-area information signs, Dubai Mall and Mirdif City Center received below-average scores. At the same time, Dubai Festival City was evaluated relatively well for installing information boards ($p < 0.001$). The field survey found that the rest-area signboard was the lowest among the accessibility items. Installing a sign indicating the rest area's location in the escalator area is necessary. Most elevator signboards were well installed, but there is room for improvement in installing the rest-area signboard near the escalator area.



Figure 6. The rest area next to the escalator in Dubai Mall (source: by the authors).

3.2. Evaluation of the Rest Area Being Next to the Bathroom

As shown in Table 7, in the context of comfort, the evaluation of natural light (BCF-1) was rated the lowest at 2.41, indicating that there was no natural light during the on-site survey. According to interviews with rest-area users, it was perceived as a closed space compared to other areas and did not receive the benefit of natural light. The rest areas adjacent to the bathrooms of Dubai Mall, Dubai Festival City, and Mirdif City Center were all rated low, scoring three points or fewer in the BCF-1 category. Dubai Festival City had

the lowest satisfaction rating, showing a significant difference ($p < 0.001$). In the BCF-4 category of ventilation, Dubai Festival City had the best ventilation, whereas Mirdif City Center was evaluated relatively poorly ($p < 0.05$).

Table 7. Evaluation of the rest area being next to the bathroom (source: by the authors).

Rest Area Next to the Bathroom	Dubai Mall		Dubai Festival City		Mirdif City Center		Total		F-Test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Comfort	ECF-1	2.90	0.95	1.92	0.99	2.33	0.95	2.41	0.97	17.208 ***
	ECF-2	3.81	0.65	2.62	0.96	2.94	1.12	3.12	0.91	23.722 ***
	ECF-3	3.73	0.78	3.48	0.82	3.45	0.90	3.56	0.83	1.842
	ECF-4	3.58	0.79	3.89	0.86	3.35	1.10	3.61	0.92	4.400 *
Aesthetic	EAE-1	2.84	1.03	2.41	0.79	2.45	0.90	2.56	0.91	3.439 *
	EAE-2	3.64	0.73	2.31	0.90	3.63	0.83	3.19	0.83	43.721 ***
	EAE-3	3.71	0.66	2.49	1.00	3.20	1.00	3.13	0.89	23.707 ***
	EAE-4	3.68	0.72	3.07	0.99	3.14	0.89	3.30	0.87	7.494 ***
Convenience	ECV-1	3.57	0.90	3.04	0.88	2.61	1.00	3.07	0.93	13.760 ***
	ECV-2	3.78	0.99	3.18	0.76	3.16	1.04	3.40	0.93	6.274 **
	ECV-3	3.28	0.98	2.30	0.92	2.51	1.06	2.70	0.99	14.352 ***
	ECV-4	2.75	0.80	2.28	0.78	2.18	0.92	2.40	0.84	7.056 ***
Accessibility	EAC-1	3.13	0.98	2.52	0.98	2.45	1.00	2.70	0.99	7.555 ***
	EAC-2	3.26	0.94	3.59	1.02	3.41	0.69	3.42	0.91	1.757
	EAC-3	3.28	0.79	3.41	0.94	3.08	0.99	3.26	0.91	1.725
	EAC-4	3.12	0.89	2.95	0.89	2.64	0.92	2.90	0.92	3.502 *
Total	3.32	0.84	2.78	0.90	2.85	0.96	2.98	0.90		

S.D. (standard deviation), * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regarding aesthetics, the satisfaction rating for color composition (BAE-4) was above three points, while the review of natural elements (BAE-1) was rated three points or fewer. Given that the rest area adjacent to the bathroom is relatively narrow compared to other areas, it may be challenging to introduce various natural elements. Overall, BAE-4, an item for color composition, was rated above average. In Dubai Mall, it was assessed that the color composition was designed to relieve fatigue by using low-saturation warm colors, showing a significant difference ($p < 0.001$). On the other hand, item BAE-2, regarding decorative design elements, was rated above average in Dubai Mall and Mirdif City Center but below average in Dubai Festival City. Despite the addition of decorative design elements, such as large LED screens in Dubai Mall and Mirdif City Center, no decorative details were added to the restroom area of Dubai Festival City, resulting in a significant difference ($p < 0.001$).

Regarding convenience, the BCF-1 item, which assesses the width and area of the passage, and the BCF-2 item, which evaluates convenience and ancillary facilities, both received a score of three or higher. In the BCF-1 item, Dubai Mall was rated the highest (Figure 7), whereas Mirdif City Center was considered the lowest ($p < 0.001$). With respect to BCF-2, diaper-changing tables were provided in women's restrooms on most floors, but only a few men's restrooms were equipped with such facilities. Overall, the BCF-4 item, which evaluates the use of non-slip finishing materials, was rated below average, showing a significant difference ($p < 0.001$). All three shopping malls had tiles that were easy to clean but lacked non-slip flooring. The evaluation of floor safety in the restroom indicates a need for thoughtful floor design.

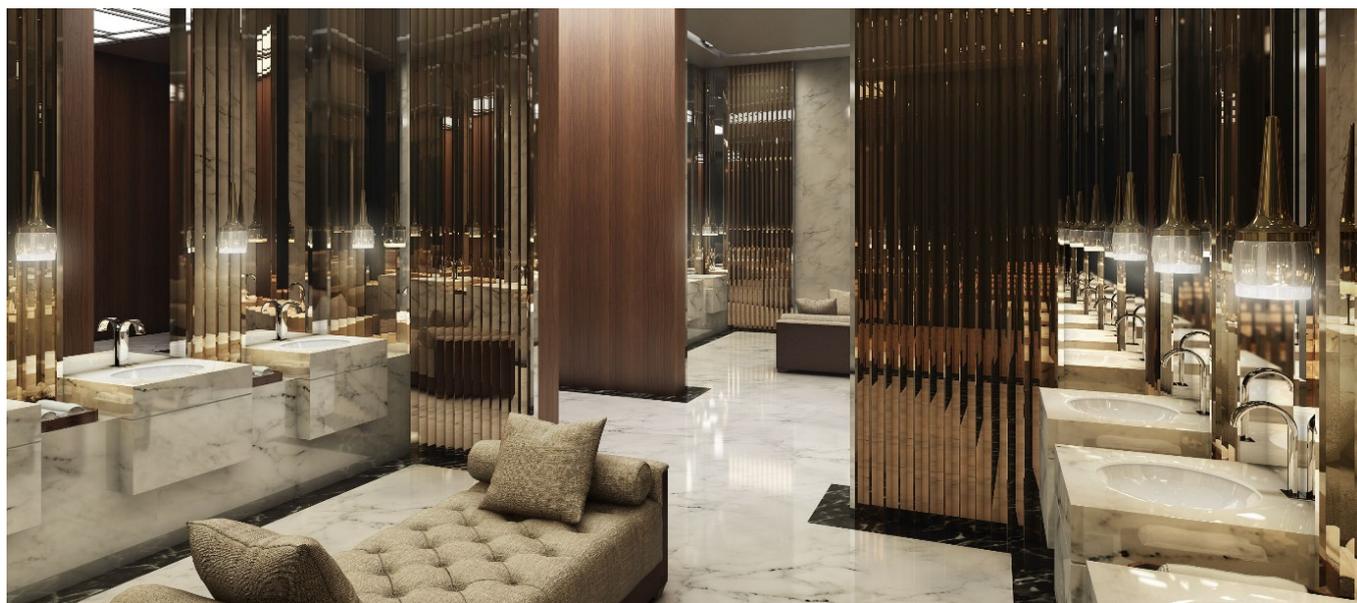


Figure 7. The rest area next to the bathroom in Dubai Mall (source: by the authors).

Regarding accessibility, the item for easy access by users (BAC-3) received the highest rating, while the item for protecting users' privacy during personal rest time received the lowest. Overall, BAC-2, the easy-access item, received an above-average rating with no significant difference. However, in the BAC-1 item, which evaluates privacy, Dubai Mall received the highest rating, whereas Mirdif City Center received the lowest, showing a significant difference ($p < 0.001$). Rest areas were situated in some restrooms in relatively narrow spaces in Dubai Festival City and Mirdif City Center. In contrast, Dubai Mall received higher ratings by providing separate rest areas.

3.3. Evaluation of the Open-Corridor Rest Area

The noise issue emerged as the most unsatisfactory factor in the comfort evaluation. According to the assessment of item CCF-3, the noise problem was found to be below average, with a significant difference ($p < 0.01$). The Mirdif City Center was rated the lowest among the three malls surveyed, in contrast to the Dubai Mall and Dubai Festival City. Thus, it is believed that Mirdif City Center, which has an atrium dispersed in multiple areas, is more susceptible to noise than the other malls surveyed (Table 8).

Regarding aesthetics, the open-corridor rest area received the lowest rating for introducing natural elements. Only Mirdif City Center received a rating of three points or more in the CAE-1 category regarding the introduction of natural elements (Figure 8). Dubai Festival City received the lowest rating, with a significant difference ($p < 0.001$). According to the field survey, the empty corridor bridge connecting the shopping space separated into two atriums in Dubai Festival City did not have natural elements, such as flowerpots or indoor landscaping, leading to a lower rating.

Table 8. Evaluation of the open-corridor rest area (source: by the authors).

Open-Corridor Rest Area	Dubai Mall		Dubai Festival City		Mirdif City Center		Total		F-Test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Comfort	ECF-1	3.04	0.87	2.44	0.81	2.86	0.83	2.78	0.84	6.927 ***
	ECF-2	3.47	0.84	2.76	0.93	3.04	0.99	3.09	0.92	8.017 ***
	ECF-3	2.61	1.03	2.26	1.10	2.01	1.05	2.29	1.07	4.419 **
	ECF-4	3.29	0.96	3.80	0.97	3.47	0.92	3.52	0.95	3.674 **
Aesthetic	EAE-1	2.98	0.90	2.48	0.84	3.46	0.91	2.98	0.89	16.153 ***
	EAE-2	2.92	0.87	3.12	1.11	3.39	0.98	3.14	0.99	2.888
	EAE-3	3.31	0.88	3.20	0.87	3.40	0.90	3.30	0.88	0.632
	EAE-4	3.12	0.73	3.09	0.83	3.47	0.86	3.23	0.81	3.578 **
Convenience	ECV-1	2.69	0.81	3.11	0.86	3.43	0.95	3.08	0.87	9.481 ***
	ECV-2	2.41	1.06	2.41	0.76	2.83	0.93	2.55	0.92	3.582 **
	ECV-3	2.40	0.85	2.83	0.79	3.16	0.96	2.80	0.87	5.103 **
	ECV-4	2.72	0.92	2.57	0.96	2.14	1.01	2.48	0.96	5.014 **
Accessibility	EAC-1	3.12	0.98	2.51	0.99	2.68	0.98	2.78	0.99	4.292 **
	EAC-2	3.70	0.89	4.35	0.93	3.88	0.88	3.98	0.90	7.435 ***
	EAC-3	3.55	0.82	3.85	0.78	3.43	0.80	3.61	0.80	3.852 **
	EAC-4	2.91	1.02	3.22	1.07	2.75	1.01	2.96	1.03	2.693
Total	3.08	0.92	3.00	0.90	3.09	0.93	3.06	0.91		

S.D. (standard deviation), ** $p < 0.01$, *** $p < 0.001$.

**Figure 8.** The open-corridor rest area in Mirdif City Center (source: by the authors).

Concerning convenience, floor safety for the disabled (CCV-4) received the lowest rating, while securing a sitting distance for rest (CCV-1) was rated relatively high. Dubai Mall received a below-average rating in the CCV-1 category of passage width and area and was rated the lowest among the three malls surveyed. Mirdif City Center received the highest rating, with a significant difference ($p < 0.001$). Although the size of the open corridor did not differ, Dubai Mall's multi-center plan and Mirdif City Center's

linear program influenced the perceptions of survey participants. In terms of convenience facilities (CCV-2), all malls received a below-average rating, but Mirdif City Center received a relatively high rating, with a significant difference ($p < 0.01$). The open-corridor rest area in Dubai Mall and Dubai Festival City only provided trash bins. In contrast, Mirdif City Center provided magazines and product information related to shopping, in addition to trash bins, making it more convenient for users of resting areas.

Accessibility was evaluated the most positively, as it was easy for users to access. However, it was assessed that it was challenging to comfortably have a personal rest time because it was located in an open space. The overall rating for the user's ease of access (CAC-2) was above average, with Dubai Festival City receiving the highest rating of 4.35 (SD = 0.93), showing a significant difference ($p < 0.001$). The rest area is located in the main circulation space of the shopping mall, making it easily accessible and providing a space to take a break while moving. In terms of privacy (CAC-1), Dubai Festival City and Mirdif City Center received a below-average rating, while Dubai Mall received an above-average rating, showing a significant difference ($p < 0.01$). The rest areas were found to be exposed, making it difficult to maintain privacy in all three malls surveyed due to their location in easily accessible open spaces.

3.4. Evaluation of the Outdoor Rest Area

Regarding user satisfaction, comfort, natural light, and shade were evaluated as the most important factors in the outdoor rest areas. Specifically, the only outside rest area that could receive natural light received the highest satisfaction rating. Regarding shade, item OCF-3 was evaluated as above average overall, with Dubai Festival City receiving the highest score ($p < 0.01$). In the outdoor rest area of Dubai Festival City, shade space is provided by installing a shade film using the ceiling in some rooms. In contrast, no shade is provided in the outdoor rest areas of Dubai Mall and Mirdif City Center. Although some trees form shade in a small space, users reported that there was not enough shaded space for rest (Table 9).

Table 9. Evaluation of the outdoor rest area (source: by the authors).

Outdoor Rest Area		Dubai Mall		Dubai Festival City		Mirdif City Center		Total		F-Test
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Comfort	ECF-1	4.22	0.75	4.22	0.66	4.62	0.58	4.36	0.67	6.167 **
	ECF-2	3.74	0.68	3.97	0.68	3.91	0.98	3.87	0.78	1.328
	ECF-3	3.40	0.90	3.96	0.77	3.43	1.04	3.60	0.90	6.460 **
	ECF-4	4.26	0.65	3.69	0.86	4.08	0.74	4.01	0.75	8.090 **
Aesthetic	EAE-1	3.87	0.83	3.33	0.99	4.14	0.93	3.78	0.92	10.373 ***
	EAE-2	3.58	1.06	4.43	0.71	3.59	0.92	3.87	0.90	15.113 ***
	EAE-3	3.83	0.88	4.06	0.76	4.06	0.78	3.98	0.81	1.364
	EAE-4	3.83	0.72	3.87	0.84	4.08	0.77	3.93	0.78	1.496
Convenience	ECV-1	3.89	0.67	3.74	0.62	4.33	0.70	3.99	0.67	11.136 ***
	ECV-2	2.81	0.96	2.94	0.78	2.71	0.96	2.82	0.90	0.913
	ECV-3	3.19	0.90	3.77	0.56	3.47	0.88	3.48	0.78	7.336 ***
	ECV-4	2.83	0.80	2.65	0.87	2.63	0.95	2.70	0.87	0.849
Accessibility	EAC-1	3.32	0.93	3.16	0.78	3.31	0.90	3.27	0.87	0.522
	EAC-2	3.38	0.92	3.87	0.82	3.61	0.94	3.62	0.89	4.047 **
	EAC-3	3.38	0.89	3.59	0.81	3.34	0.97	3.73	0.88	4.156 *
	EAC-4	3.34	1.01	3.46	0.98	3.35	1.06	3.61	0.90	0.233
Total		3.55	0.86	3.68	0.79	3.71	0.87	3.65	0.85	

S.D. (standard deviation), * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Aesthetics were evaluated positively across all items, with a score of three (normal) or higher. Dubai Mall and Mirdif City Center scored higher than Dubai Festival City on

OAE-1 regarding the introduction of various natural objects ($p < 0.001$). In contrast, Dubai Festival City scored higher on OAE-2 for sights and events, which is consistent with its theme of cartoon characters. Mirdif City Center scored highly on the garden theme, which was sufficiently introduced with natural features (Figure 9). However, its OAE-2 event item was rated lower than that of Dubai Festival City ($p < 0.001$). The results suggest that natural elements and event elements are closely related to the theme of the outdoor rest area.



Figure 9. The outdoor rest area in Mirdif City Center (source: by the authors).

In terms of convenience, the width and area of space received the highest satisfaction rating, while appropriate steps that do not interfere with walking received the lowest rating, with fewer than three points (normal). The Mirdif City Center outdoor rest area, consisting of gardens, received high scores on OCV-1 regarding the width and size of the space. On the other hand, the outdoor rest area of Dubai Festival City received lower scores than Mirdif City Center ($p < 0.001$). Given that the main customers of the outdoor rest area of Dubai Festival City are guardians with children, securing a space to enable strollers to pass conveniently is necessary. Privacy protection (OAC-1) received the lowest rating among accessibility items. The installation of information boards (OAC-4) was evaluated somewhat insignificantly, and the structure of information boards indicating where the outdoor rest area is located is required. Mirdif City Center received the lowest rating on OAC-3 for connection with indoor space.

3.5. User-Satisfaction Evaluation for Rest Area

A thorough evaluation of the satisfaction of users of the shopping-mall rest area with the overall space was conducted by dividing each area into surveys and analysis. The findings revealed that the rest area adjacent to the escalator garnered a satisfaction score of 3.50 (SD = 0.75), the rest area near the bathroom received a score of 2.80 (SD = 0.98), the open-corridor rest area scored 3.23 (SD = 0.85), while the outdoor rest area scored 4.04 (SD = 0.76) (Table 10).

Table 10. User-satisfaction level for rest areas (source: by the authors).

Classification	Dubai Mall		Dubai Festival City		Mirdif City Center		Total		F-Test
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	
Rest Area next to the Escalator	3.21	0.82	3.61	0.68	3.69	0.65	3.50	0.75	6.701 **
Rest Area next to the Bathroom	3.25	0.87	2.54	0.86	2.61	1.06	2.80	0.98	9.230 ***
Open-Corridor Rest Area	3.13	0.92	3.26	0.81	3.29	0.83	3.23	0.85	0.522
Outdoor Rest Area	3.92	0.81	3.98	0.66	4.22	0.81	4.04	0.76	2.138 *

S.D. (standard deviation), * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Furthermore, the rest area adjacent to the bathroom was evaluated solely for Dubai Mall, which received a score of three or more points. Conversely, Dubai Festival City and Mirdif City Center had a significant difference of three or fewer points ($p < 0.001$). On the other hand, the rest area next to the escalator showed above-average overall satisfaction. The open-corridor rest area also garnered above-average overall satisfaction, with Mirdif City Center recording the highest level ($p < 0.05$).

4. Discussion

The paper discusses and builds on the existing literature about the evaluation of rest areas in three different shopping malls in Dubai under the lens of four characteristics: comfort, aesthetics, convenience, and accessibility. The results obtained reinforce, to a considerable extent, the findings of previous research that indicate that users' satisfaction with the provision of natural light in escalator areas was the highest in Dubai Mall. However, the absence of natural elements in the escalator area was noted in Dubai Mall. The provision of convenience facilities and ancillary facilities in the escalator area was rated the highest. Regarding accessibility, users highly evaluated the connection between other spaces and circulation, with Dubai Mall receiving the highest score.

To begin with, the high user satisfaction with the provision of natural light in the escalator areas in the Dubai Mall aligns well with the findings of Kim and Runyan [35], who also emphasized the importance of authenticity, comfort, and convenience, aspects that the inclusion of natural light can augment. It is interesting to note that while there was high satisfaction with natural light, the lack of natural elements in the same area was observed. This echoes the notion raised about the composition of rest areas that should consider aesthetic elements for user satisfaction, with the study suggesting the inclusion of more natural elements for aesthetic enhancement [44].

Regarding convenience, the present study found high approval for facilities in the escalator areas. This speaks volumes about the importance of convenience, an attribute that was also underlined by Ortegón-Cortázar and Royo-Vela [41] and Calvo-Porrall and Lévy-Mangín [47] in their works.

Accessibility, which emphasizes efficient access and connection with other spaces, also received high scores, particularly in the Dubai Mall. This finding correlates with the work of Rousseau and Venter [45] that underlined the significance of connectivity and accessibility in public spaces.

However, some discrepancies were noted between the findings of this study and earlier works. Notably, the low evaluation of natural light in rest areas adjacent to bathrooms contrasts sharply with the importance of comfort highlighted in previous studies [35,41,44,46,47]. This discrepancy points to potential areas for further improvements in mall design.

Moreover, the limited provision of diaper-changing tables in men's restrooms stood out. This concern seems to tie in with the notion of accessibility and convenience, especially in terms of inclusivity and catering to diverse user needs. It may be interpreted as a call for more gender-inclusive facilities, thereby augmenting the user-satisfaction level.

In conclusion, while the results largely align with the literature, there are aspects that indicate the potential for improvement. Ensuring a balanced incorporation of natural light, natural elements, convenience facilities, and more inclusive amenities, such as diaper-changing tables in men's restrooms, could lead to a more satisfying user experience in shopping-mall rest areas. Future research could delve into these elements to provide more insights into designing rest areas that meet the diverse needs of users.

5. Conclusions

In response to the evolving needs of contemporary society, individuality diversification, and changes in consumer behavior, shopping malls serve as virtual spaces for distribution, sales, and various cultural functions. As a result, careful planning is necessary to ensure that shopping-mall users can comfortably and conveniently use the rest area. This study conducts a literature review and empirical study to investigate the spatial characteristics of indoor and outdoor shopping malls and understand the essential features of each rest area by analyzing user satisfaction. The following are the results and conclusions of this study.

Firstly, through a review of related literature and previous studies, the concepts of indoor and outdoor rest areas of shopping malls were organized and reclassified. This study reclassified the shopping-mall rest area as a rest area next to the escalator, a rest area next to the bathroom, an open-corridor rest area, and an outdoor rest area.

Secondly, various spatial characteristics of the shopping-mall rest area were analyzed, organized, and extracted as four environmental characteristics: comfort, aesthetics, convenience, and accessibility. In addition, detailed evaluation items for each spatial characteristic factor were composed. A specific evaluation tool for each rest area consisting of 16 clear evaluation items for an indoor rest area and 16 detailed evaluation items for an outdoor rest area was constructed. By constructing a different spatial characteristic evaluation tool for each rest area, it is expected that more appropriate primary data for each rest-area plan can be presented.

Thirdly, rest-area user satisfaction was evaluated using the spatial characteristics evaluation tool of the shopping mall's indoor and outdoor rest areas. The results showed that satisfaction with aesthetics and accessibility was relatively high, and satisfaction with convenience was the lowest. In particular, the evaluation of the rest area next to the bathroom was the lowest, indicating a need for more parts in the field survey. Dissatisfaction with the use of the open-corridor rest area appeared as the number of cases where sales tables were placed in the area and used as a sales space increased. To address this, adjusting the size of the sales stands considering the rest area and separating the sales and rest areas by visually and acoustically blocking them using plants and design elements could be considered.

Fourthly, multiple-regression analysis was performed on each rest area's four characteristics and satisfaction to understand the spatial characteristics affecting the pleasure of using the shopping-mall rest area. It was found that accessibility is a spatial characteristic that influences all rest areas. Measures to increase accessibility should be considered, such as putting guide signs in an appropriate place to clarify the motion and direction and connecting indoor and outdoor spaces well. Sufficient convenience facilities and furniture should be arranged in each resting space, and the privacy of resting-space users should be maintained. Additionally, it is essential to ensure sufficient ventilation, provide appreciation elements, such as natural elements such as plants, sights, events, and fountain/waterfalls, and provide rest-area colors.

In conclusion, the importance of the shopping-mall rest area is increasing as a service space with various functions. To create a better shopping-mall rest area, a differentiated approach that avoids a uniform design and considers important spatial characteristics according to the type of rest area will be required. The results of this study can be used as primary data for rest-area planning that reflect user needs in the future.

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were designed and installed by C.J. and N.S.A.M. N.S.A.M. was responsible for data collection. C.J. performed data analysis. The manuscript was compiled by C.J. and reviewed by N.S.A.M. All authors have read and agreed to the published version of the manuscript.

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