PLOS ONE

RESEARCH ARTICLE

Role of servicescape in patients' clinic care waiting experience: Evidence from developing countries

Abdul Rauf[1], Norhilmi Muhammad[2], Hamid Mahmood[3], Yuen Yee Yen[4]*, Muhammad Haroon Rashid[5], Warda Naseem[3]

1 Faculty of Business and Management, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia, **2** Faculty of General Studies and Advanced Education, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia, **3** Department of Management Science, TIMES Institute, Multan, Pakistan, **4** Faculty of Business, Multimedia University, Melaka, Malaysia, **5** School of Economics and Management, Harbin Institute of Technology, Harbin, China

* yyyuen@mmu.edu.my

Check for updates

OPEN ACCESS

Citation: Rauf A, Muhammad N, Mahmood H, Yee Yen Y, Rashid MH, Naseem W (2024) Role of servicescape in patients' clinic care waiting experience: Evidence from developing countries. PLoS ONE 19(10): e0311542. https://doi.org/10.1371/journal.pone.0311542

Editor: Yasir Ahmad, National University of Sciences and Technology, PAKISTAN

Received: March 4, 2024

Accepted: September 17, 2024

Published: October 15, 2024

Copyright: © 2024 Rauf et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: All relevant data are within the manuscript and its Supporting information files.

Funding: The author(s) received no specific funding for this work.

Competing interests: NO authors have competing interests.

Abstract

The aim of this research is to investigate the role of servicescape on re-patronage and recommended intention through pleasure feeling and satisfaction in healthcare settings that put substantial contribution in the process of healthcare service delivery. Data were collected through cross-sectional convenience sampling via a self-administered survey questionnaire from 431 clinical outpatients who revisit the same hospital of metropolitan areas of Punjab, Pakistan. Structural Equation Modeling (SEM) was carried out for path analysis through AMOS (24.0 V), while statistical measures were analyzed using SPSS (25.0 V). The present study results revealed that patients' intention optimistically triggered through partial mediation and affirm the direct and indirect association with servicescape. It also revealed that patient-recommended and re-patronage intentions to visit the clinic were statistically substantial and positively influenced by intervening constructs of pleasure feeling and satisfaction. Additionally, it is found that servicescape and pleasure feeling contributed to 30% change in satisfaction. Moreover, pleasure feeling, and satisfaction contributed to 50% change in re-patronage and 31% change in recommendation intention of the patients. The current study findings contribute significantly to servicescape literature from a theatrical perspective and reevaluate the patterns and operations in healthcare. It also helps managers and administrators of private hospitals to make strategies to increase patient satisfaction.

Introduction

Patients with different health conditions experience treatment burden from outpatient appointments. Waiting for an appointment in the clinic can generate emotions, such as anxiety and stress [1], which affect their behavioral outcomes [2]. Resega et al [3] studied patients' emotional condition in waiting rooms and discovered that patients felt anxious; nevertheless, patients were waiting for serious treatment or routine follow-up. Patients with different health conditions generate negative emotions while waiting at the clinic, which affect their

experiences and future intentions. Patient experience also plays an important role in elucidating servicescape in healthcare settings. As patients navigate complexities regarding outpatient appointment, their satisfaction and emotional well-being intensively impact patient's healthcare journey. Furthermore, understanding patients' emotional burdens during clinic visits and the role of servicescape in shaping patients' perceptions are essential for healthcare providers to tailor services. Therefore, patients' idiosyncratic insight is very important for improving their experience to design services [4]. Additionally, empirical evidence indicates that patients' perceptions regarding the clinics are formed by the physical environment and safety [5]. This indicates that patient's clinical care experience may be assessed through the physical dimensions of the service environment in which it is provided. Service environment is often studied using 'servicescape' concept in clinical context [6], that relies on spatial layout, ambiance, and signage (i.e., noise, temperature, and lightning) [7], which have shown significant positive effect on patient experience and subsequent satisfaction [8, 9].

Several studies have investigated the servicescape elements (color, music, scent, and light) with customer satisfaction and behavior [10–12], but the role of pleasure feelings on patient satisfaction with servicescape in the healthcare sector needs to be addressed. Pleasure feeling is predominantly important in dispersive and complex settings (e.g., hospitals/clinics), where patients rely on nonclinical and clinical services. Unlike retail and hospitality service settings, where physical environment and pleasure feelings are highly valued [13, 14]. Although pleasure feelings during service consumption process are less important than functional aspects in utilitarian services (e.g., banks and healthcare services), but their effective response plays an imperative role in patient satisfaction [15, 16]. Manzoor et al [17] defined patient satisfaction as "feelings of happiness, fulfillment, and pleasure towards service provider and its services." Satisfaction is driven from patient/customer expectations with service providers and tempered by individuals' emotions toward environmental surroundings [18]. Satisfaction is also considered as more valuable and reliable determinant for maintaining patient's long-term behavior [19]. However, healthcare service providers who overlook the importance of customer satisfaction may risk losing patients [20]. In other words, higher patient satisfaction leads to greater patient retention [21, 22], and willingness to recommend [23, 24]. Moreover, role of recommended intention and re-patronage intention is well established in hedonic service context, but their impact in utilitarian services, particularly in healthcare, has not been sufficiently investigated [25].

The current study was conducted in a metropolitan city in Punjab, Pakistan, due to its significant population size of 53% and substantial proportion of hospitals. The current research also aimed to investigate the effect of pleasure feelings and satisfaction on re-patronage intention and recommended intention with servicescape in healthcare service settings. Additionally, it explores the mediational effect of pleasure feelings between satisfaction and servicescape (Fig 1). The results of present study contribute to the body of knowledge and help the administrators and managers to improve servicescape and increase patient satisfaction in a service environment. More precisely, better understanding of user satisfaction can guide service investment decisions and facilitate the creation of patient-focused hospitable environment. It will also help hospital managers with decision-making points to build strong environment that can attract and retain patients in this intensive healthcare competition.

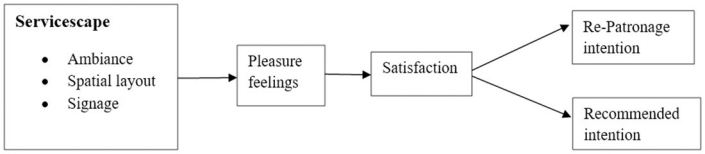


Fig 1. Research framework.

https://doi.org/10.1371/journal.pone.0311542.g001

Literature review

Servicescape and pleasure feeling

The concept of servicescape, which denotes the physical environment of a service platform, was initially introduced by Bitner [7]. It is denoted with term "atmospheric" which was created by Kotler [26], highlighting it as an effort to design the buying environment to produce buyer-specific emotional effects, that enhance their purchase probability. Servicescape environmental stimuli are characterized by three facets: ambiance, spatial layout, and signage [27]. The first facet is ambiance, which refers to intangible characteristics that stimulate human preceptory and influence patients' response to the physical environment through cleanliness, visuals, and ambient conditions [28]. The second facet is the spatial layout, which refers to the settings between objects, such as machines, equipment, or furniture in a service area. The third facet is signage, which denotes physical signals to the patients and communicates general meanings during the service process [29]. Signage creates an organizational image, influences patient needs, and improves the service environment [30]. All of these facets [ambiance, spatial layout, and signage] generate attitudes about how individuals behave and generate pleasure feelings among them [8]. Pleasure is considered as significant factor in shaping environmental experiences and evokes people to engage in a behavioral approach [31]. Additionally, patients tend to feel dominant when servicescape is perceived as flexible, ordered, and rated more intensely associated with patients' submissive feelings. It also intends to create certain emotions that generate negative or positive feelings among patients [32]. Thus, we propose:

H1: Servicescape positively relates to pleasure feelings.

Pleasure feeling and satisfaction

Pleasure feelings are described as hedonistic emotions, please, and the degree to which an individual feels happy [33]. Pleasure feelings also play an important role in patient response during service experience [34]. Positive emotions with service experience trigger a feeling of pleasure, which acts as a driver of satisfaction [35]. Patient satisfaction with the service environment results in perceptions and specific emotions [36]. Therefore, this study argues that positive emotions express a better service environment and indicate higher patient satisfaction. Additionally, past studies have examined the relationship of pleasure feelings with satisfaction in tourism and retail services [37]. Despite prior studies, there has been minimal effort to determine the relationship between pleasure feeling and patient satisfaction in healthcare services settings. Therefore, we propose the following hypotheses:

H2: Pleasure feelings positively relate to satisfaction.

Satisfaction and re-patronage, recommended intention

Satisfaction is an adequate sensation of comfort and joy, resulting in fulfillment of the cognitive evaluation of experiences, events, and thoughts [37]. Patient satisfaction refers to certain service delivery characteristics, including interpersonal communication and physical environment [38], that summarize satisfaction's effective and cognitive components. Although few studies have investigated the relationship between patient satisfaction with recommended intention and re-patronage intention in healthcare, despite that extensive literature argues that intention is an imperative outcome of satisfaction [39]. Intentions refer to idiosyncratic judgment about

patient's future behavior that normally functions as an outcome variable [40]. Hellier et al. [41] defined re-patronage intention as an individual's judgment regarding buying again from the same service provider, considering his/her current situation and circumstances. It also refers to the patient's intention to recommend services to others [25], and intends to raise the scope and scale of the relationship [42]. Additionally, satisfied patients in the service environment intend to revisit the same hospital and recommend it to others [43]. Therefore, in the present study, re-patronage intention and recommended intention are theorized as patients' inclination to visit same hospital and recommend it to others for different medical purposes.

H3: Satisfaction positively relates to re-patronage intention.

H4: Satisfaction positively relates to recommended intention.

Pleasure feeling as mediator

Pleasure feeling is a potential mediator because it is known to change human emotions and hold a state of deep interest. Generally, people react emotionally before assessing a situation cognitively; nevertheless, cognition may come first because of the ability of human mind to plan and imagine the future [44]. Therefore, cognition and thoughts release emotions that influence patient satisfaction [45], and link patient's positive or negative emotions with the healthcare service environment. Additionally, Batra and Tanej [46], found that servicescape significantly affects patients' emotions and cognition in the service environment. Drawing on these theoretical arguments, the present study postulates the following hypothesis.

H5: Pleasure feelings mediate the relationship between servicescape and satisfaction.

Satisfaction as mediator

Patient satisfaction is a reaction or decision that follows cognition and emotions [47]. This reaction refers to a specific concentration [physical environment] determined in a particular phase [48]. Therefore, Ge et al. [49] argued that satisfaction is the extent of pleasure felt by patients, which results from their ability to fulfill expectations and desires. On the other hand, Ruiz Fernandez et al. [50], expressed that satisfaction comes from positive perceptions and emotions developed by customers or can be measured by the degree of pleasure. This suggests that when patients feel pleasure from the service environment, it may influence their satisfaction. Furthermore, Hossain et al. [51], stated that the behavioral intention of the customer is regarded as an extension of satisfaction. When patients feel pleasure, they will probably be satisfied with the environment, leading to re-patronage and recommended intention. Previous studies also prove that satisfaction has a direct effect on re-patronage intention [52], and recommended intention [53]. Thus, we propose.

H6: Satisfaction mediates the relationship between pleasure feelings and re-patronage intention.

H7: Satisfaction mediates the relationship between pleasure feelings and recommended intention.

Methods

The current study followed positivist paradigm to achieve study objectives and investigate causal relationship among constructs. According to Creswell [54] and Rasheed et al [55] the

quantitative research design determines the conceptual model investigation. Therefore, researcher followed the quasi-experimental quantitative research design that consists of diverse and multiple data collection measures including close & open-ended survey, secondary data, and observations.

Target population, sampling, and sample size

The current study targets patients aged between 20 and 41 or older, as this age range allows comprehensive data collection across various demographic groups. The selection of a hospital increasingly reflects public identity, encompassing values and beliefs. Consequently, outpatients are chosen as a sample to understand patients' perspectives on global sustainable healthcare settings. The target population of present research was the outpatients of metropolitan areas of Punjab, Pakistan. Patients were selected as a sample because they have firsthand experience with healthcare services and are aware of healthcare-related issues.

A non-probability convenience sampling technique was used to collect data from outpatients due to its time-saving and ease of applicability nature. The current study also used vigorously incorporating statistical methods to enhance convenience sampling procedure and eliminate biasness. This method regulates potential biases and demographics for data weightage, ultimately advancing the assurance of study findings and strengthening the convenience sampling technique's reliability [56]. According to Roscoe [57] the minimum sample of 30 and maximum sample size of 500 are considered appropriate for behavioral studies. The sample greater than 200 offer suitable margin error and contrary to this, 200 sample size is required for Structural Equation Modelling (SEM) [58, 59]. So, considering the potential biasness, the sample size of present research is 512.

Instrument

The current research model, based on servicescape, pleasure feeling, and satisfaction, was hypothesized to envisage patients' recommendations and re-patronage intention. An adapted instrument was developed from extant studies to validate the scale of this study. A four-item scale, focusing on ambient conditions, spatial layout, and signage, was adapted from Sag et al. [60], and Akmaz and Cadiric [61]. Pleasure feeling was measured using four items adapted from Kim and Moon [62]. The seven satisfaction items were adapted from Larsen et al. [63]. Simultaneously, five and three items were adapted to measure re-patronage intention Abbasi et al. [64], and recommended intention Al-Ansi et al. [23] respectively. All these constructs were measured with five-point Likert scale.

Data collection, time frame and response rate

This cross-sectional research uses numerous statistical methods to examine the contextual approach. The present study comprises patients' clinical care waiting experience support to encounter the wayfinding waiting room environment to advance healthier consideration regarding contextual issues. This study used a survey method (pencil-paper based) for data collection from outpatients via convenience sampling. The data were collected between august 2023 and September 2023 with the help of seven research scholars. For ethical considerations, researcher affirmed that participants' responses used for academic purposes, and their identities remained anonymous. After obtaining consent, 512 questionnaires were distributed and only 476 responses were received. Out of 476 responses, 431 were finalized after eliminating missing information that availed an 84.4% response rate. The dominant respondents were male (57.1%, n = 246) and belonged to the age group of 41 or above (42.9%, n = 185). The demographic profiles are highlighted in detail in Table 1.

Table 1. Respondents' profile (n = 431).

Variables	Frequency	Percentage
Gender		
Male	246	57.1%
Female	185	42.9%
Age		
20 & Below	22	5.1%
21–30	80	18.6%
31–40	144	33.4%
41 or above	185	42.9%
Education		
High School	129	29.9%
Some College	175	40.6%
Postgraduate	119	27.4%
PhD	08	1.9%
Residence		
Urban	237	55.2%
Rural	194	44.8%
Income [Monthly]		
Below Rs. 40,000	44	10.2%
Rs. 41000–60,000	93	21.6%
Rs. 61000–80,000	188	43.6%
81000 and above	106	24.6%
Switching Experience		
Yes	202	46.9%
No	229	53.1%

Source: Based on calculation of SPSS software

https://doi.org/10.1371/journal.pone.0311542.t001

Common method bias

While considering data screening, the present study found that not a single item was missed from the required information. According to Kline [65], the rule of thumb for skewness ranges from −1 to + 1 for every construct, confirming the validity of the present study data. Respondents were informed about the purpose and constructs of the present study to lessen the common method influence. The predictor and criterion constructs' data were collected cross-sectionally, contradicting the assumptions of [66]. This study applied Harman's single-factor test to check common method bias [67]. The results revealed that one factor elucidated less than 53% of variance and guaranteed the nonappearance of common method bias.

Data analysis method

The present study applied structural equation modeling (SEM) to establish the predictive association between study constructs using AMOS (24.0). The model was developed based on path analysis to identify the direct and indirect associations between servicescape and recommended and re-purchase intentions. SEM was used in the current study due to the relatively large dataset; in contrast, PLS-SEM is recommended in complex models. Furthermore, the present study focused on assessing the association among outcomes of predictive constructs, and SEM is considered more appropriate for predictive modeling [68, 69].

Results

Demographic of respondents

Respondents' demographics are presented in Table 1. Out of the 431 respondents, 246 (57.1%) were male and remaining 185 (42.9%) were female. The majority of the respondents were aged 41 or above with a frequency of 185 (42.9%). In the qualification section, most respondents reported having college education, with the frequency of 175 (40.6%). The majority, 237 (55.2%) of the respondents were from urban areas and the remaining 194 (44.8%) were from rural areas. The next section illustrates the income of the respondents, in which income between Rs. 61,000 to 80,000 had highest frequency of 175 with percentage of 40.6%. The last section referred to the switching experience of the respondents, in which 229 (53.1%) of the respondents had no prior switching experience.

Measurement model

The reliability and validity of the constructs were measured using confirmatory factor analysis (CFA). The results show assessment of the measurement model within the acceptable range of model fit ($\chi 2/df = 2.298$, df = 196, GFI = 0.960, NFI = 0.931, RFI = 0.92, CFI = 0.95, TLI = 0.952, RMSEA = 0.055) [70]. Standardized factor loading of all items exceeded a threshold of 0.50, with $p < 0.001$. The average variance extracted was also greater than 0.60, the threshold level of AVE, and fell within the range of 0.657 to 0.764, as shown in Table 2. Further, composite reliability is also greater than the threshold level of 0.70 (63), and falls within the range of 0.816 to 0.921. The convergent validity of the current study supports these measures. Finally, the present study also established discriminant validity, as shown in Table 3.

Table 2. Factor loadings, average variance extracted and composite reliability.

Construct	Dimension	Item	FL	AVE	CR	A
Servicescape	***Spatial***	A2	.81	.712	.881	.821
		A3	.87			
		A4	.85			
	Signage	E1	.84	.689	.816	.883
		E2	.82			
	Ambient	RI1	.86	.757	.862	.875
		RI4	.88			
Pleasure Feeling		RES1	.83	.744	.921	.894
		RES2	.86			
		RES3	.89			
		RES4	.87			
Re-Patronage Intentions		AA1	.81	.657	.884	.887
		AA2	.77			
		AA3	.84			
		AA4	.82			
Satisfaction		S3	.82	.698	.902	.865
		S4	.84			
		S5	.86			
		S6	.82			
Recommended Intentions		T1	.88	.764	.907	.779
		T2	.82			
		T3	.92			

https://doi.org/10.1371/journal.pone.0311542.t002

Table 3. Discriminant validity.

Construct	VIF	SS	P	S	RPI	RCI
SS	1.411	**.85**				
P	1.923	.68	**.86**			
S	1.109	.47	.52	**.84**		
RPI	1.121	.45	.53	.67	**.81**	
RCI	1.129	.47	.47	.48	.46	**.87**

Note: SS = Servicescape, P = Pleasure, S = Satisfaction, RPI = Re-Patronage Intention, RCI = Recommended Intention

https://doi.org/10.1371/journal.pone.0311542.t003

Path analysis via CB-SEM

Multicollinearity did not exist in the model because all assessed variance inflation factor (VIF) values varied from 1.112 to 1.866 and were below the requisite threshold level of 3.0. Table 4 presents the proposed hypotheses (H1-H4). All of the assumptions confirmed that servicescape positively influences customer pleasure feeling (β = .681, p.000), secondly pleasure feeling positively affects customer satisfaction (β = .374, p.000), Thirdly, satisfaction positively influences re-patronage (β = .546, p.000), and customer satisfaction positively influences the recommended intentions of outpatients (β = .315, p.000) (shown in Fig 2).

Mediation analysis

The current study investigates the mediational effect of using bootstrapping Maximum Likelihood Estimation (MLE) approach with 1000 bootstrap samples with 95% confidence interval. Results showed a substantial indirect effect of servicescape on satisfaction via pleasure feeling (β = .429*.363 = .155). Further, it also shows the indirect effect of pleasure feeling via satisfaction with re-patronage intention (β = .411*.463 = .191) and recommended intention (β = .392*.397 = .157). Additionally, it found that change of 47% in pleasure feeling induced by servicescape. The predictive capacity (R2) of the total variance in the dependent variable was identified as a result of changes in independent factors. Furthermore, servicescape and pleasure feeling contributed to 30% change in satisfaction. Thirdly, pleasure feeling, and satisfaction contributed to 50% change in re-patronage. Lastly, pleasure feeling, and satisfaction contributed to 31% change in recommendation intentions of the patients. The study also used Cohen's (64) method to calculate the effect magnitude because the small, medium, and large threshold values of f 2 should be 0.02, 0.15, and 0.35, respectively. Hence, the present research

Table 4. Path analysis and path coefficients.

Path Analysis			Estimate	S.E.	C.R.	P	Decision
P	←	SS	.681	.054	13.403	***	Supported
S	←	SS	.223	.069	3.313	***	Supported
S	←	P	.374	.067	5.383	***	Supported
RPI	←	P	.262	.045	4.942	***	Supported
RCI	←	P	.311	.054	5.298	***	Supported
RCI	←	S	.315	.056	5.507	***	Supported
RPI	←	S	.546	.052	9.326	***	Supported

Note: SS = Servicescape, P = Pleasure, S = Satisfaction, RPI = Re-Patronage Intention, RCI = Recommended Intention

https://doi.org/10.1371/journal.pone.0311542.t004

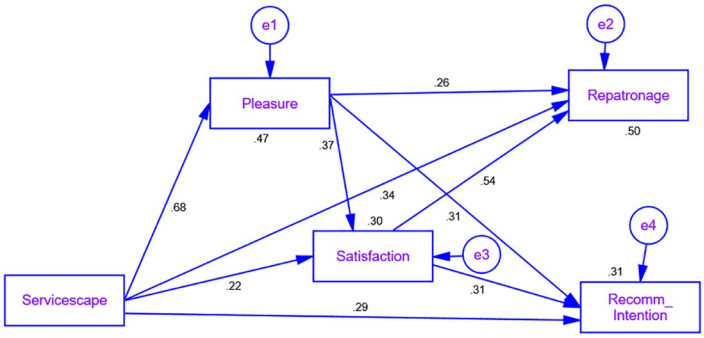


Fig 2. Structural equation modeling.

https://doi.org/10.1371/journal.pone.0311542.g002

framework proposes that pleasure feelings (f 2 = 0.4231) have a large effect size on mediation. Additionally, correlation (f 2 = 0.1934) observed between pleasure feelings and re-patronage in relationship to customer satisfaction. Lastly, satisfaction has (f 2 = 0.1331) a medium effect size of mediation between the relationship of pleasure feeling of customers and recommendation intentions of outpatients to visit the clinics.

Discussion and conclusion

Numerous studies have prevailed in the literature on clinical outpatient waiting practices regarding servicescape facets [71], and stimulatingly observed with ambiance, spatial layout, and signposts that statistically influence clinical outpatients' intentions while waiting. The present study revealed that such facets pave the way for satisfaction, eventually triggering an optimistically perceived performance that converts it into re-patronage and recommended intentions. Findings also revealed that emotional feedback and distinctiveness of waiting experience, including effective management of servicescape facets, significantly enhance overall satisfaction and intentions regarding the clinical waiting experience. The combination of ambiance, spatial layout, signage, feelings of pleasure, and satisfaction aptitude influence the clinical outpatient intention [60, 72]. Correspondingly, pleasure-based satisfaction prospectively extents superior perfection while visiting the first time, triggering the repetition of clinical outpatients.

Additionally, pleasant experiences wielded a considerable and inclusively optimistic impact on other aspects alleged more enthusiastically [73]. The present study's findings are also consistent with an extant study because experiential constructs, re-patronage, and recommended intentions played a considerable role through repeated visits, emotive attachment, and personal recommendation for the sake of instantaneous precursors [25]. Consequently, re-patronage and recommended intentions primarily rely on clinical outpatient satisfaction in healthcare settings [48, 74]. The findings revealed that surveillance activities, i.e., checking-in and waiting, give an optimistic impression for enhancing pleasure feelings that shape potential satisfaction. Prominently, facets of servicescape experience positively contribute toward pleasure feeling that causes outpatient satisfaction.

Theoretical implications

The past studies have investigated the role of servicescape in marketing literature and environmental psychology, but very few studies have examined the servicescape with pleasure feeling in healthcare sector. Therefore, this study contributes to relationship among servicescape,

pleasure feeling, and satisfaction with recommended intention, re-patronage intention, and enhance the knowledge in the field of healthcare that remains under investigated. This study fills the literature gap a) by investigating servicescape impact on patient behavioral intention and b) by exploring the mediating effect of pleasure feeling between servicescape and satisfaction. The current study also contributes to the theoretical advancement by highlighting the role of servicescape in enhancing patients pleasure feeling in waiting areas. Additionally, current study theoretically validates the servicescape facets within the healthcare setting which require substantial investment. These insights provide understanding of how servicescape impacts in patient behavioral intention particularly pleasure feeling and satisfaction which navigate the positive experience and foster the re-patronage intention and recommended intention of the patient.

Practical implications

It is very important for study discussion to comprehensively interpret practical insights for the health service managers and professionals. The present study findings offer significant effort to reduce disparities and provide evidence-based support in decision making process. It also revealed that healthcare management should introduce telemedicine services, mobile health clinics, and local practitioners' involvement. Additionally, practitioners and healthcare management should initiate tailored training programs to increase patient engagement, promote cultural aptitude, establish gender-sensitive healthcare, and patient compliance among rural and urban settings. Lastly, recruitment of skilled healthcare professionals may increase patients revisit intention and improve hospital performance.

Limitations and future direction

The present study has some limitations that offer opportunities for potential researchers. The first and foremost limitation is the sample size, which is relatively small, and the current study is based on cross-sectional data. In the future, researchers must use a longitudinal study design that might create diverse expectations for clinical outpatients. The data collection procedure is quite difficult because the study targets only outpatients actively found in clinics; in the future, it can also add some hospitals for more generalizability. Pakistan is a developing country, so the financial condition of outpatients and the stress of associated illness undeniably constrained the outpatient's willing participation in this survey to encounter this situation, clinic staff gave some assistance, but unfortunately, they were not a part of this survey. For future research, potential researchers should set a large sample size in the same or diverse healthcare settings to authenticate the present study findings. Further research could also include staff members and user groups with diverse healthcare settings to identify the effects on their waiting experiences. Additionally, the present research relied on a quantitative approach, and in the future, qualitative or mixed methods might be used to extend outpatients' experiences in forthcoming circumstances.

Supporting information

S1 Dataset. The data set used in this article for discussion and analysis.
(XLSX)

S1 Questionnaire. The data collection tool.
(DOCX)

Author Contributions

Conceptualization: Abdul Rauf, Norhilmi Muhammad.

Data curation: Hamid Mahmood, Muhammad Haroon Rashid, Warda Naseem.

Formal analysis: Abdul Rauf, Muhammad Haroon Rashid.

Funding acquisition: Yuen Yee Yen.

Investigation: Abdul Rauf, Norhilmi Muhammad, Hamid Mahmood, Warda Naseem.

Methodology: Abdul Rauf, Norhilmi Muhammad, Warda Naseem.

Project administration: Norhilmi Muhammad.

Resources: Yuen Yee Yen.

Software: Yuen Yee Yen.

Supervision: Norhilmi Muhammad.

Validation: Norhilmi Muhammad, Hamid Mahmood.

Visualization: Warda Naseem.

Writing – original draft: Abdul Rauf, Norhilmi Muhammad.

Writing – review & editing: Hamid Mahmood, Yuen Yee Yen, Muhammad Haroon Rashid.

References

1. Clapton G. The general practice health waiting area in images: Threshold, borderland, and place of transition in the sense of self. InForum Qualitative Sozialforschung/Forum: Qualitative Social Research 2018 (Vol. 19, No. 1, p. 17). DEU.
2. Fryburg DA. What's Playing in Your Waiting Room? Patient and Provider Stress and the Impact of Waiting Room Media. Journal of Patient Experience. 2021 Nov; 8:23743735211049880. https://doi.org/10.1177/23743735211049880 PMID: 34869835
3. Resega R, Piva S, Bramati A, Lurati C, La Verde N, Riva M, et al. Prospective evaluation through questionnaires of the emotional status of cancer patients in the waiting rooms of a department of oncology. Journal of Health and Social Sciences. 2016; 1(2):113–22.
4. Lugosi P, O'Brien C, Olya H, Pink RC, Lavender V. Evaluating impacts of the physical ervicescape on satisfaction in cancer care waiting experiences. International Journal of Hospitality Management. 2023 Jul 1; 112:103386.
5. Browall M, Koinberg I, Falk H, Wijk H. Patients' experience of important factors in thehealthcare environment in oncology care. International journal of qualitative studies on health and well-being. 2013 Jan 1; 8(1):20870.
6. Lai KP, Chong SC. The influence of servicescape and service credibility on older adults' intention to recover: a study of rehabilitation services in Malaysia. Journal of Health Organization and Management. 2020 Apr 2; 34(2):101–22.
7. Bitner MJ. Servicescapes: The impact of physical surroundings on customers and employees. Journal of marketing. 1992 Apr; 56(2):57–71.
8. DCunha S, Suresh S, Kumar V. Service quality in healthcare: Exploring servicescape and patients' perceptions. International Journal of Healthcare Management. 2019 Apr 28.
9. Tinner M, Crovella P, Rosenbaum PF. Perceived importance of wellness features at a cancer center: Patient and staff perspectives. HERD: Health Environments Research & Design Journal. 2018 Jul; 11 (3):80–93.
10. Bilgili B, Ozkul E, Koc E. The influence of colour of lighting on customers' waiting time perceptions. Total Quality Management & Business Excellence. 2020 Jul 3; 31(9–10):1098–111.
11. Lin IY. The combined effect of color and music on customer satisfaction in hotel bars. Journal of Hospitality Marketing & Management. 2009 Nov 13; 19(1):22–37.
12. Denizci Guillet B, Kozak M, Kucukusta D. It's in the air: Aroma marketing and affective response in the hotel world. International Journal of Hospitality & Tourism Administration. 2019 Jan 2; 20(1):1–4.

13. Ali F, Amin M, Ryu K. The role of physical environment, price perceptions, and consumption emotions in developing customer satisfaction in Chinese resort hotels. Journal of Quality Assurance in Hospitality & Tourism. 2016 Jan 2; 17(1):45–70.

14. Kim M, Jang J. The effect of physical environment of the employee break room on psychological well-being through work engagement in the hospitality industry. Journal of Human Resources in Hospitality & Tourism. 2022 Apr 3; 21(2):175–96.

15. Godovykh M, Tasci AD. Emotions, feelings, and moods in tourism and hospitality research: Conceptual and methodological differences. Tourism and Hospitality Research. 2022 Apr; 22(2):247–53.

16. Gezhi C, Xiang H. From good feelings to good behavior: Exploring the impacts of positive emotions on tourist environmentally responsible behavior. Journal of Hospitality and Tourism Management. 2022 Mar 1; 50:1–9.

17. Manzoor F, Wei L, Hussain A, Asif M, Shah SI. Patient satisfaction with health care services; an application of physician's behavior as a moderator. International journal of environmental research and public health. 2019 Sep; 16(18):3318. https://doi.org/10.3390/ijerph16183318 PMID: 31505840

18. Lin JS, Liang HY. The influence of service environments on customer emotion and service outcomes. Managing Service Quality: An International Journal. 2011 Jul 12; 21(4):350–72.

19. Prakash B. Patient satisfaction. Journal of cutaneous and aesthetic surgery. 2010 Sep 1; 3(3):151–5. https://doi.org/10.4103/0974-2077.74491 PMID: 21430827

20. Rauf A, Muhammad N, Mahmood H, Aftab M. Healthcare service quality: a systematic review based on PRISMA guidelines. International Journal of Quality & Reliability Management. 2024 Jun. Ahead-of-print. https://doi.org/10.1108/IJQRM-12-2023-0403

21. Borghi L, Leone D, Poli S, Becattini C, Chelo E, Costa M, et al. Patient-centered communication, patient satisfaction, and retention in care in assisted reproductive technology visits. Journal of assisted reproduction and genetics. 2019 Jun 15; 36:1135–42. https://doi.org/10.1007/s10815-019-01466-1 PMID: 31077010

22. Rauf A, Muhammad N, Mahmood H, Yen YY, Sabir I. A conceptual framework of service quality on patient's behavioral assessment: Insight from Pakistan. Journal of Infrastructure, Policy and Development. 2024 Aug 27; 8(8):6428.

23. Al-Ansi A, Olya HG, Han H. Effect of general risk on trust, satisfaction, and recommendation intention for halal food. International Journal of Hospitality Management. 2019 Oct 1; 83:210–9.

24. Yang X. Determinants of consumers' continuance intention to use social recommender systems: A self-regulation perspective. Technology in Society. 2021 Feb 1; 64:101464.

25. Odoom PT, Narteh B, Odoom R. Healthcare branding: Insights from Africa into health service customers' repeat patronage intentions. International journal of healthcare management. 2021 Jul 3; 14 (3):663–75.

26. Kotler P. Atmospherics as a marketing tool. Journal of retailing. 1973 Nov; 49(4):48–64.

27. Sahoo D, Ghosh T. Healthscape role towards customer satisfaction in private healthcare. International journal of health care quality assurance. 2016; 29(6):600–13. https://doi.org/10.1108/IJHCQA-05-2015-0068 PMID: 27298059

28. Dharma D, Adawiyah WR, Sutrisna E. The effect of servicescape dimension on patient satisfaction in private hospital in Purwokerto, Central Java. ICORE. 2020; 5(1).

29. Ardley B, Taylor N, McLintock E, Martin F, Leonard G. Marketing a memory of the world: Magna Carta and the experiential servicescape. Marketing Intelligence & Planning. 2012 Sep 14; 30(6):653–65.

30. Siu NY, Wan PY, Dong P. The impact of the servicescape on the desire to stay in convention and exhibition centers: The case of Macao. International Journal of Hospitality Management. 2012 Mar 1; 31 (1):236–46.

31. Kumar S, Shah A. Revisiting food delivery apps during COVID-19 pandemic? Investigating the role of emotions. Journal of Retailing and Consumer Services. 2021 Sep 1; 62:102595.

32. Hsu LH, Hsiao YH. Facilitating green supply chain in dental care through Kansei healthscape of positive emotions. International journal of environmental research and public health. 2019 Oct; 16(19):3507. https://doi.org/10.3390/ijerph16193507 PMID: 31547090

33. Mehrabian A, Russell JA. An approach to environmental psychology. the MIT Press; 1974.

34. Altinay L, Alrawadieh Z, Tulucu F, Arici HE. The effect of hospitableness on positive emotions, experience, and well-being of hospital patients. International Journal of Hospitality Management. 2023 Apr 1; 110:103431.

35. Loureiro SM. Medical tourists' emotional and cognitive response to credibility and Servicescape. Current Issues in Tourism. 2017 Nov 18; 20(15):1633–52.

36. Rodríguez-Fuertes A, Reinares-Lara P, Garcia-Henche B. Incorporation of the emotional indicators of the patient journey into healthcare organization management. Health Expectations. 2023 Feb; 26 (1):297–306. https://doi.org/10.1111/hex.13656 PMID: 36335577

37. Wong A. The role of emotional satisfaction in service encounters. Managing Service Quality: An International Journal. 2004 Oct 1; 14(5):365–76.

38. Alkazemi MF, Bayramzadeh S, Alkhubaizi NB, Alayoub A. The physical environment and patient satisfaction ratings on social media: an exploratory study. Facilities. 2020 Jan 17; 38(1/2):86–97.

39. Al Amin M, Ahad Mia MA, Bala T, Iqbal MM, Alam MS. Green finance continuance behavior: the role of satisfaction, social supports, environmental consciousness, green bank marketing initiatives and psychological reactance. Management of Environmental Quality: An International Journal. 2023 May 26.

40. Mahmood H, Rehman AU, Sabir I, Rauf A, Afthanorhan A, Nawal A. Restaurant diners' switching behavior during the COVID-19 pandemic: protection motivation theory. Frontiers in Psychology. 2022 May 27; 13:833627. https://doi.org/10.3389/fpsyg.2022.833627 PMID: 35693527

41. Hellier PK, Geursen GM, Carr RA, Rickard JA. Customer repurchase intention: A general structural equation model. European journal of marketing. 2003 Dec 1; 37(11/12):1762–800.

42. Mandhachitara R, Poolthong Y. A model of customer loyalty and corporate social responsibility. Journal of services marketing. 2011 Apr 26; 25(2):122–33.

43. Woo S, Choi M. Medical service quality, patient satisfaction and intent to revisit: Case study of public hub hospitals in the Republic of Korea. Plos One. 2021 Jun 28; 16(6):e0252241. https://doi.org/10.1371/journal.pone.0252241 PMID: 34181662

44. Lantolf JP, Poehner ME. Sociocultural theory and classroom second language learning in the East Asian context: Introduction to the special issue. The Modern Language Journal. 2023 Jan; 107(S1):3–23.

45. Al-Mhasnah A, Salleh F, Afthanorhan A, Ghazali PJ. The relationship between services quality and customer satisfaction among Jordanian healthcare sector. Management Science Letters. 2018; 8 (12):1413–20.

46. Batra M, Taneja U. The Role of Servicescape on Emotions and Satisfaction of Patients in Indian Hospitals. Journal of Health Management. 2022 Sep; 24(3):433–9.

47. Bayih BE, Singh A. Modeling domestic tourism: motivations, satisfaction and tourist behavioral intentions. Heliyon. 2020 Sep 1; 6(9). https://doi.org/10.1016/j.heliyon.2020.e04839 PMID: 32995592

48. Ai Y, Rahman MK, Newaz MS, Gazi MA, Rahaman MA, Mamun AA, et al. Determinants of patients' satisfaction and trust toward healthcare service environment in general practice clinics. Frontiers in Psychology. 2022 Jul 29; 13:856750. https://doi.org/10.3389/fpsyg.2022.856750 PMID: 35967652

49. Ge Y, Yuan Q, Wang Y, Park K. The structural relationship among perceived service quality, perceived value, and customer satisfaction-focused on starbucks reserve coffee shops in Shanghai, China. Sustainability. 2021 Aug 3; 13(15):8633.

50. Ruiz Fernandez MD, Lirola MJ, Ramos-Pichardo JD, Ortíz-Amo R, Ibáñez-Masero O, Rodríguez Gómez S, et al. Emotional Intelligence and Perceived Health Related to Expressed Compassion Fatigue: A Study in Health Sector at Regional Level. Frontiers in Psychology. 2021 Nov 30; 12:729624. https://doi.org/10.3389/fpsyg.2021.729624 PMID: 34916989

51. Hossain MA, Jahan N, Kim M. A multidimensional and hierarchical model of banking services and behavioral intentions of customers. International Journal of Emerging Markets. 2023 Mar 21; 18 (4):845–67.

52. Atulkar S, Kesari B. Satisfaction, loyalty and repatronage intentions: Role of hedonic shopping values. Journal of Retailing and Consumer Services. 2017 Nov 1; 39:23–34.

53. Finn A, Wang L, Frank T. Attribute perceptions, customer satisfaction and intention to recommend e-services. Journal of Interactive Marketing. 2009 Aug; 23(3):209–20.

54. Creswell JW, Creswell JD. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications; 2017 Dec 12.

55. Rasheed N, Sabir RI, Mahmood H, Rauf A, Ibrahim AM, Naseem W. Impact of pro-environmental values on sustainable green apparel buying behavior in Pakistan. Cleaner and Responsible Consumption. 2024 Mar 1; 12:100180.

56. Raifman S, DeVost MA, Digitale JC, Chen YH, Morris MD. Respondent-driven sampling: a sampling method for hard-to-reach populations and beyond. Current Epidemiology Reports. 2022 Mar; 9(1):38–47.

57. Roscoe AM, Lang D, Sheth JN. Follow-up Methods, Questionnaire Length, and Market Differences in Mail Surveys: In this experimental test, a telephone reminder produced the best response rate and questionnaire length had no effect on rate of return. Journal of Marketing. 1975 Apr; 39(2):20–7.

58. Kline RB. Principles and practice of structural equation modeling. Guilford publications; 2023 May 24.

59. Hair Jnr JF, Black WC, Babin BJ, Anderson RE. Multivariate data analysis.

60. Sag I, Zengul FD, Landry AY. Patient perceptions of servicescape in healthcare: A systematic review of the literature. Journal of Healthcare Management. 2018 Mar 1; 63(2):94–104. https://doi.org/10.1097/JHM-D-16-00014 PMID: 29533318

61. Akmaz AE, Çadırcı TO. The impact of healthscape on customer satisfaction and loyalty in public and private healthcare institutions. Yildiz Social Science Review. 2017 Dec 12; 3(1):81–96.

62. Kim WG, Moon YJ. Customers' cognitive, emotional, and actionable response to the servicescape: A test of the moderating effect of the restaurant type. International journal of hospitality management. 2009 Mar 1; 28(1):144–56.

63. Larsen DL, Attkisson CC, Hargreaves WA, Nguyen TD. Assessment of client/patient satisfaction: development of a general scale. Evaluation and program planning. 1979 Jan 1; 2(3):197–207. https://doi.org/10.1016/0149-7189(79)90094-6 PMID: 10245370

64. Abbasi GA, Kumaravelu J, Goh YN, Singh KS. Understanding the intention to revisit a destination by expanding the theory of planned behaviour (TPB). Spanish Journal of Marketing-ESIC. 2021 Feb 15; 25(2):282–311.

65. Kline RB. Structural equation modeling. New York: Guilford. (1998).

66. Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP. Common method biases in behavioral research: a critical review of the literature and recommended remedies. Journal of applied psychology. 2003 Oct; 88(5):879. https://doi.org/10.1037/0021-9010.88.5.879 PMID: 14516251

67. Aguirre-Urreta MI, Hu J. Detecting common method bias: Performance of the Harman's single-factor test. ACM SIGMIS database: the DATABASE for Advances in Information Systems. 2019 May 6; 50 (2):45–70.

68. Rauf A, Mahmood H, Naveed RT, Yen YY. Modeling cynicism and organizational design on job performance: Mediation and moderation mechanism. Heliyon. 2024 May 29. https://doi.org/10.1016/j.heliyon.2024.e32069 PMID: 38882298

69. Hair JF, Ringle CM, Sarstedt M. PLS-SEM: Indeed a silver bullet. Journal of Marketing theory and Practice. 2011 Apr 1; 19(2):139–52.

70. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: a multidisciplinary journal. 1999 Jan 1; 6(1):1–55.

71. Devlin AS. Seating in doctors' waiting rooms: Has COVID-19 changed our choices?. HERD: Health Environments Research & Design Journal. 2022 Oct; 15(4):41–62. https://doi.org/10.1177/19375867221104248 PMID: 35726212

72. Jia Z, Nourian P, Luscuere P, Wagenaar C. Spatial decision support systems for hospital layout design: A review. Journal of Building Engineering. 2023 May 15; 67:106042.

73. Modisane KT. The pursuit of happiness: Efforts of global leadership and followers to achieve social harmony. InHandbook of Global Leadership and Followership: Integrating the Best Leadership Theory and Practice. 2023 Mar 30 (pp. 801–825). Cham: Springer International Publishing.

74. Latha H, Patil S, Kini PG. Influence of architectural space layout and building perimeter on the energy performance of buildings: A systematic literature review. International Journal of Energy and Environmental Engineering. 2023 Sep; 14(3):431–74.