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Design and research of indoor wellness space under the concept of communication studies

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Abstract: This study investigates how communication theory can enhance indoor wellness space design, aiming to (1) identify key design elements influencing user satisfaction and (2) explore user experiences to improve engagement. A mixed-methods approach was employed, combining quantitative surveys (N=409) with qualitative focus groups and interviews (N=30) in Nanjing's Gulou District. Quantitative analysis revealed that educational interactivity, aesthetics, and entertainment significantly predict satisfaction, with entertainment being the strongest driver of revisit intention. Qualitative findings uncovered four critical themes: interactive education, aesthetic personalization, entertainment integration, and information coherence, emphasizing the need for dialogic communication, culturally resonant design, dynamic activities, and clear messaging. The study concludes that wellness spaces must move beyond standardized, passive models toward adaptive, user-centered designs that foster engagement through multisensory and participatory experiences. The novelty of this research lies in its integration of communication studies with environmental design, offering a theoretical and practical framework for creating therapeutic, communicative wellness spaces.

Keywords: *Aesthetic personalization, Communication theory, Interactive education, Mixed-methods research, User satisfaction, Wellness space design.*

1. Introduction

The design of indoor wellness spaces has evolved significantly in recent years, driven by increasing awareness of health and well-being among individuals [1]. As modern lifestyles become more sedentary and stress-induced health issues rise, the demand for spaces that promote physical, mental, and emotional wellness has grown substantially [2]. However, despite this growing demand, many existing wellness spaces fail to fully address users' holistic needs, often prioritizing functionality over experiential and communicative aspects [3]. This gap highlights the need for a more interdisciplinary approach to wellness space design one that integrates principles from communication studies to enhance user engagement and satisfaction. Communication theory, which examines how information is transmitted, interpreted, and acted upon, offers valuable insights into how spatial design can influence perceptions, behaviors, and emotional responses [4]. By applying communication theory to indoor wellness spaces, this study seeks to bridge the divide between architectural design and human-centered interaction, ultimately fostering environments that more effectively promote well-being.

The concept of wellness extends beyond mere physical health, encompassing mental, emotional, and social dimensions [5]. Indoor wellness spaces, such as spas, meditation centers, rehabilitation facilities, and wellness-themed residential areas, must therefore be designed to support these multifaceted needs [6]. Traditional approaches to wellness space design have often focused on ergonomic functionality, material selection, and aesthetic appeal, yet they frequently overlook the role of spatial communication in shaping user experiences [7]. Communication in this context refers not only to verbal or visual messaging but also to the way spatial layouts, lighting, textures, and interactive elements convey meaning and influence behavior [8]. For instance, a well-designed wellness space should intuitively

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guide users toward relaxation, encourage social interaction where appropriate, and reinforce health-promoting behaviors through environmental cues [9].

The problems experienced in indoor wellness space design today can be summarized as follows, and they are the focus of this study. One key concern is the absence of educational communication in these spaces. A lot of wellness facilities use health-related information in a passive way, for instance, in posters and monitors which are automatically displayed on the walls or using television and computer technology [10]. Applying the principles drawn from the Shannon-Weaver model or the principles of the Two-Step Flow theory would positively enhance the activity of knowledge dissemination as it would be more focused and engage with the audience [11]. Another issue common with Wellness spaces is the type, aesthetic design in most cases become generic or are nature inspired but they do not consider the different target groups or cultures [12]. This can lead to disengagement because the users would not find anything familiar with the ambiance of the space. In addition, attributes such as entertainment and recreational benefits of wellness are slenderly defined therefore leaving the environments barren notably in their ability to retain patrons in the long run [13].

To begin analyzing and elucidating on these dynamics, the current study draws from two theoretical presumptive domains: communication theory and architectural and environmental psychology. This allows an examination of the ways in which the communication theory elucidates the transmission of messages through guests' perceptions of such elements of wellness spaces as lighting, color citation, physical arrangement, and technology, as well as the decoding of such messages by the guests [14]. For example, Symbolic Interactionism postulates that meaning is given by people in terms of their social and personal interactions [15]. Environmental psychology explores what design can do to 'shape the mood and behavior' and three environmental facets that have a way of leading to stress and cognitive replenishment: including light, biophilia, and noise [16].

The contribution of this research lies in its novel integration of communication theory into the discourse on wellness space design, offering a fresh perspective that transcends conventional architectural approaches. By framing wellness spaces as dynamic communicative environments, this study advances theoretical knowledge at the intersection of design studies, communication, and environmental psychology. Practically, the findings will equip designers with evidence-based strategies to create more engaging, effective, and user-centered wellness spaces. Furthermore, the research addresses a critical gap in the wellness industry by providing a structured methodology for evaluating and improving spatial communication, ultimately enhancing user satisfaction and long-term engagement. As wellness continues to gain prominence in global health paradigms, this study's insights will be invaluable in shaping future design innovations that prioritize both functionality and human connection.

2. Literature Review

The interconnection between communication research and architecture has emerged as an area with growing interest among academicians and researchers, but there is still a dearth of literature in this area especially with implications for indoor wellness facilities [17]. Although previous studies have paid much attention to investigating wellness environments from functionality and appearance approaches [18] however, little research has been conducted on how communication theory can be applied to optimize the use of such environments for improving the delivery of health-related information and engaging the target audiences [19]. It is especially significant considering current trends that demand interior space to not only be functional but also used as an instrument that positively influences the user's state of mind and behavior [20].

One stream of literature in environmental psychology is concerned with the effects that spatial geometry has on cognition and emotions [21]. Research shows that the use of lighting, color and spatial arrangements can affect stress, attention and social relationships [22]. However, these findings are inclined to omit the "how" of design elements in terms of the role of semiotics where design is seen as a resource for meaning making that encodes a message [23]. For example, biophilic design, which is

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considered important in the literature on wellbeing, is often regarded as an initiable rather than as an evocative component [24]. This work builds upon this line of discussion by considering how such design paradigms might be re-imagined through theories such as Semiotics [25] which suggest that an environment 'speaks' to its user by informing them of certain actions that are available.

It is equally important to reconsider the restorative power of spaces by looking at them through the lens of communication [26]. Current designs are usually top-down and based on communicating messages through signs or electronic messages, which goes against current knowledge about what health communication means [27]. Theories such as the Extended Elaboration Likelihood Model (EELM) there is increased elaboration and retention as users co-construct meaning through senses [28]. guidelines [29] state that learning can be optimized by websites which are fun, explorative and embedded into the real environment: Similarly, prior research on museums and interactive exhibits [30, 31] has posited that engagement, immersion and interaction within exhibits improves the effectives of learning; a principle that has not yet formally been applied to the concept of wellness spaces.

Another problem stems from the lack of emphasis on cultural and contextual communication in contextual and aesthetic uniformity in wellness spaces. Though simplified nature-oriented designs are the current trends [32] they bear a generic approach, which harms the identification with user and utilization experience. Reception Theory [6] and Cultural Probes [33] hold the key here in the manner they present how individuals decode designs at the personal and the socially available meanings. For instance, a study on hospitals showed that environmental aesthetics differed by age and cultural group, thus influencing the effectiveness of the healing process [34].

It is even though all these strands can be coalesced into a coherent theoretical model of communicative wellness space as demonstrated in this study [35]. Previous reviews [36] tend to be highly specific on sustainability or biophilic design, but do not consider how theories of communication can combine educational, aesthetic and entertainment uses. In contrast, this research links these two areas by using communication accommodation theory [37] which suggests for communication with users a shift in paradigm for wellness spaces that have hitherto been designed from a service provider-centered perspective. It also contributes to the progress of academe and provides tangible benchmarks for measuring design success: the rate at which users interact with the design; and the extent to which users recall the information that has been presented [38]. These are the specifics that this study has set out to achieve. Based on the prior literature review, this study proposes the following hypotheses:

- Hypothesis 1: The educational aspect of perceived wellness center characteristics has a positive impact on consumer satisfaction. (Supporting literature required)
- Hypothesis 2: The recreational aspect of perceived wellness center characteristics has a positive impact on consumer satisfaction. (Supporting literature required)
- Hypothesis 3: The aesthetic aspect of perceived wellness center characteristics has a positive impact on consumer satisfaction. (Supporting literature required)
- Hypothesis 4: The educational aspect of perceived wellness center characteristics has a positive impact on revisit intentions. (Supporting literature required)
- Hypothesis 5: The recreational aspect of perceived wellness center characteristics has a positive impact on revisit intentions. (Supporting literature required)
- Hypothesis 6: The aesthetic aspect of perceived wellness center characteristics has a positive impact on revisit intentions. (Supporting literature required)
- Hypothesis 7: Consumer satisfaction with wellness centers has a positive impact on revisit intentions. (Supporting literature required).

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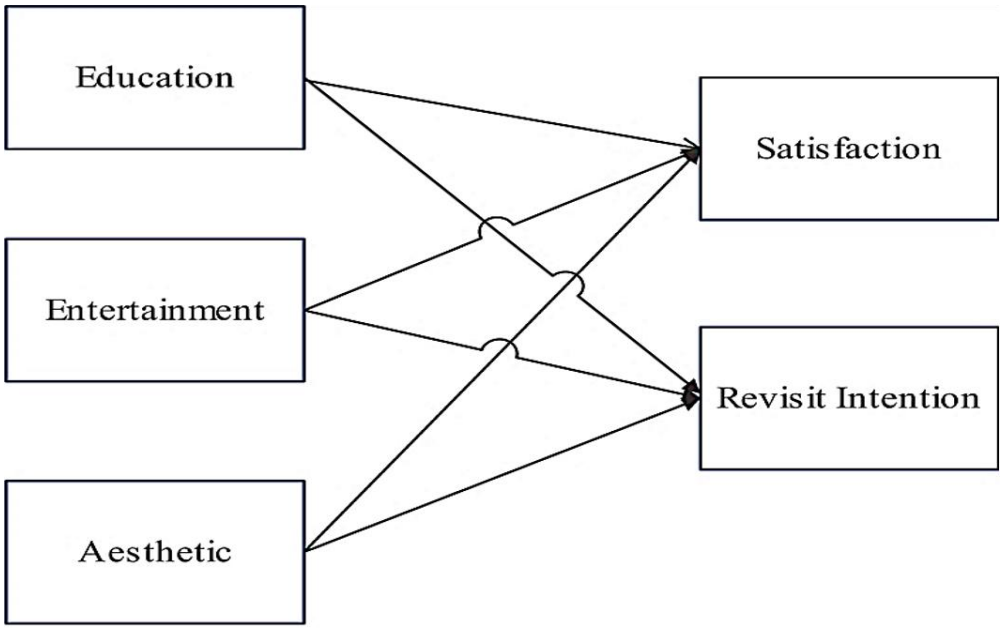

Figure 1.
Research Model.

3. Methodology

3.1. Research Design

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to comprehensively examine how communication theory principles can enhance indoor wellness space design. The quantitative component employs a cross-sectional survey to measure user perceptions of wellness space characteristics (educational, aesthetic, and recreational) and their impact on satisfaction and revisit intentions. The qualitative component consists of focus group discussions (FGDs) and semi-structured interviews to gather in-depth insights into user experiences, preferences, and unmet needs. This dual approach ensures a robust analysis by triangulating statistical trends with contextual narratives, aligning with the study's objective of bridging communication theory and spatial design. The research design is hypothesis-driven, testing the proposition that well-communicated design features positively influence user satisfaction, while remaining flexible enough to explore emergent themes through qualitative data.

3.2. Data and Sampling

The study focused on Gulou District in Nanjing as the primary site for data collection, selected for its diverse population and abundance of wellness-related facilities, including rehabilitation hospitals and community wellness centers. This urban district provided an ideal setting to examine how different demographic groups interact with and perceive indoor wellness spaces. To ensure comprehensive representation of wellness space users, the sampling strategy employed a two-phase approach combining purposive and random sampling methods. In the first phase, purposive sampling was used to recruit participants actively engaged with structured wellness services. This included inpatients from a rehabilitation hospital and residents of a wellness center, groups chosen for their direct experience with professionally managed wellness environments. By targeting these specific populations, the study aimed to gather nuanced insights from individuals who regularly utilize such spaces for health maintenance or recovery. The second phase incorporated random sampling of general community members within Gulou District to capture broader perspectives on wellness needs and preferences among urban residents.

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The total useable sample size was n=409 respondents from an initial distribution of 466 questionnaires, after filtering incomplete or inconsistent entries. Additionally, a subset of n=30 participants was selected for in-depth qualitative data collection through interviews and focus group discussions (FGDs) to complement the quantitative survey findings. The total sample size for surveys was determined through a power analysis conducted using G*Power 3.1 to ensure adequate statistical power for detecting meaningful effects.

Figure 2.
Gulou District, Nanjing City, Jiangsu Province.

3.3. Participants and Procedure

The study engaged participants across three distinct age cohorts to capture the diverse wellness needs of urban populations: young professionals (25–40 years), middle-aged adults (41–60 years), and elderly retirees (61+ years). This stratification ensured representation of varying life stages, health concerns, and spatial preferences inherent to indoor wellness space utilization. Recruitment employed a dual-channel approach to address demographic disparities in technology access. For tech-savvy populations, particularly younger and middle-aged participants, surveys were distributed digitally through the Wenjuanxing platform. Recognizing the digital divide among elderly populations, the study incorporated offline methods, including face-to-face interviews and paper-based questionnaires administered by trained researchers in community centers and rehabilitation facilities.

Specific inclusion criteria required all participants to report usage of the venues such as medical rehabilitation clinics, spas, or community wellness centers within the last one year. This criterion made it possible for the respondents to give their assessments and feedback based on real life experiences that they encounter at work. After recording their written or digital consent, participants filled in a 15-item survey designed to measure opinions and satisfaction with the design parameters. To complement quantitative data, a purposive sample of 30 participants, from the same schools as those in the above said study, participated in 60 minutes focus group discussions (FGD) or semi structured interviews.

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3.4. Measures and Tools

The study employed three key research instruments to collect comprehensive data. The primary tool was a self-administered questionnaire adapted from established scales by McIntosh [39] and Fodness [40] which measured participants' perceptions of wellness space design characteristics and their satisfaction levels. The questionnaire comprised 17 items divided into three sections. The first section assessed design characteristics through 10 items across three dimensions: educational ("The space effectively teaches health practices"), aesthetic ("The design is visually calming"), and recreational ("Activities here are engaging"), all rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The second section evaluated user satisfaction using three items adapted from Chowdhury, et al. [20] including statements such as "I feel rejuvenated after visiting this space." The final section captured demographic information, including age, gender, education level, and self-reported health status.

Focus group discussion (FGD) guides and semi structured interview protocols were developed to complement quantitative data. The concepts of these FGDs involved emotional resonance with design elements and barriers, to enable group discussion around collective experiences. The interviews were in the form of individual semi structured interviews which facilitated deeper exploration of the individual narratives through prompts such as, 'Describe a 'communicative' wellness space for you.

3.5. Data Analysis Methods

To analyze the relationships between the characteristics of the wellness space and the subscribers' satisfaction level, the quantitative data obtained in this research were statistically processed in the SPSS 26.0 program. A brief initial analysis just involved the calculation of frequencies and means of the demographic data and initial perception of the wellness spaces of the sample. Secondly, inferential statistics were used to perform bivariate analysis in order to observe a correlation between the dimensions of design such as education, aesthetic, and recreation and the satisfaction mean scores. The multiple regression analysis was then conducted to evaluate the extent to which the mentioned design factors affect the overall satisfaction, net of the demographic variables. Furthermore, exploratory factor analysis was also used to establish the construct validity of the measurement scales employed in the quantitative procedures of the study.

For the analysis of the qualitative data, thematic analysis approach was used according to Braun and Clarke [29] to provide a structure for identifying themes in participants' experience and perception. The interview and focus group discussion notes were originally transcribed in full (meaning word for word which was taped) and then patterned or coded with no pre-existing categories to identify themes. Through the coding, subcategory, and dimension integration process, emerging themes such as 'Cultural sensitivity in aesthetics' and 'Interactivity in educational message conveyance' were recognized and developed.

3.6. Ethical Consideration

This study strictly adhered to the ethical principles outlined in the Declaration of Helsinki, ensuring all participants provided informed consent after receiving detailed brochures explaining the research objectives, procedures, and their rights, including the freedom to withdraw at any time without consequence. To protect participant confidentiality, all collected data were anonymized, with only aggregate results reported in the findings, and sensitive information was stored securely using encrypted, password-protected servers to prevent unauthorized access. Prior to data collection, ethical approval was obtained from the Nanjing University Ethics Review Board (Approval No. NDU-2023-0415), and collaborating institutions, including hospitals and wellness centers, were thoroughly briefed to ensure participant comfort and voluntary participation throughout the study.

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4. Findings

4.1. Data Collection and Sample Characteristics

The demographic analysis gives a basic information on the study population which is crucial in determining perception and use of indoor wellness among various users. Since wellness design is expected to address the needs of users with various demographics, chronic conditions, gender, age, and educational levels all of which are represented in this sample confirm that the subjects are appropriate for exploring how the communication-based design concepts impact the user's experiences. The high levels of respondents that reported their health as poor supports this assertion and shows that the study is about a population that may especially benefit from such wellness spaces and their design.

Table 1.
Demographic Analysis.

Name	Options	Frequency	Percentage (%)	Cumulative Percentage (%)
Gender	Male	213	52.08	52.08
	Female	196	47.92	100
Age	18-24	18	4.4	4.4
	25-34	67	16.38	20.78
	35-44	93	22.74	43.52
	45-54	136	33.25	76.77
	55 and above	95	23.23	100
Education	Junior High and Below	96	23.47	23.47
	High School/Technical School	162	39.61	63.08
	College/associate degree	126	30.81	93.89
	Bachelor's Degree and Above	25	6.11	100
Health Status	Very Poor	58	14.18	14.18
	Poor	178	43.52	57.7
	Average	119	29.1	86.8
	Fairly Healthy	46	11.25	98.04
	Very Healthy	8	1.96	100
Total		409	100	100

Table 1 provides a demographic profile study as follows: gender distribution is almost balanced with 52.08% of male and 47.92% of female respondents and, therefore, the sex bias cannot be an issue when generalizing the results of the study. The age distribution shows that the study mostly applies middle-aged and older individuals (45-54 years of age constituting the biggest proportion at 33.25%), who are likely to incorporate wellness services resulting from age-related health issues. The education level is also varied with most of the participants having high school or vocational level (39.61%), followed by collegiate level (30.81%) thus making sure that we get participants with different degrees of Socio-economic status. First of all, 43.52% of participants described their health status as "poor", which underlines the significance of the presented sample for the improvement of its organic well-being.

Table 2.
Descriptive Statistics of Key Variables (N=409).

Variable	No. of Items	Mean	Standard Deviation	Skewness	Kurtosis	Minimum	Maximum
Education	4	3.89	1.06	-0.32	-0.45	1	5
Aesthetics	3	3.88	1.12	-0.28	-0.51	1	5
Entertainment	3	3.9	1	-0.35	-0.38	1	5
Satisfaction	3	3.96	1	-0.41	-0.42	1	5
Revisit Intention	2	3.92	1.08	-0.37	-0.39	1	5

Table 2: Descriptive statistics highlights an overall appreciation of wellness spaces in the four parameters: convenience, aesthetics, safety, and satisfaction, with all having means above 3.8 on a 5-point scale, where satisfaction gained the highest value of 3.96. Standard deviation values range from 1.00 to 1.12; thus, it can be expected that the variation of responses is average These skewness values

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range from -0.28 to -0.41, which means that respondents' ratings lean towards the positive aspect. The minimum and the maximum for the scale usage indicate that the respondents utilized all the Likert scales and the kurtosis values of -0.38 to -0.51 indicate that the choices were distributed evenly and not skewed towards the mid-point. These patterns combined imply that on an average the wellness spaces are serving the purpose to the extent of user satisfaction expectations, but signifies the need for more definite enhancements in terms of design parameters; notably, the dimension of entertainment (M=3.90) and aesthetic resources (M=3.88) received relatively lower rating mean scores than the measure of satisfaction outcomes.

4.2. Measurement Validation in the Study

Measurement validation is a crucial step in ascertaining the reliability and validity of the research findings on indoor wellness space design that has been undertaken in this study. Through a moment coefficient analyses for all the measured variables and scale coefficients for our education value, aesthetics, entertainment, user satisfaction, and revisit intention, it became clear that the measurement instruments used for the study properly measure the theoretical constructs. It is especially important in design research since perceptions are often involved in the analysis process since it ensures that the measurement instruments used are valid and capable of capturing differences in relation to the characteristics of the wellness spaces and user outcomes. These findings of the factor analysis and reliability assessment give confidence that the subsequent analyses of the role and effects of design is a not likely to be influenced by measurement issues rather point towards well-constructed and well-validated variables.

Table 3.
Factor Analysis Results.

Name	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Communality
Education 1	0.838	0.227	0.177	0.127	0.152	0.823
Education 2	0.816	0.169	0.152	0.165	0.122	0.76
Education 3	0.814	0.221	0.167	0.153	0.184	0.798
Education 4	0.817	0.192	0.233	0.147	0.116	0.794
Aesthetic 1	0.192	0.839	0.159	0.153	0.136	0.807
Aesthetic 2	0.191	0.818	0.214	0.191	0.133	0.806
Aesthetic 3	0.241	0.815	0.226	0.097	0.156	0.808
Entertainment 1	0.208	0.141	0.21	0.793	0.215	0.783
Entertainment 2	0.211	0.26	0.15	0.819	0.206	0.848
Entertainment 3	0.231	0.163	0.227	0.85	0.116	0.867
Satisfaction 1	0.255	0.217	0.764	0.175	0.175	0.758
Satisfaction 2	0.208	0.207	0.82	0.16	0.102	0.793
Satisfaction 3	0.173	0.262	0.775	0.111	0.198	0.751
Revisit Intention 1	0.229	0.273	0.175	0.154	0.81	0.838
Revisit Intention 2	0.195	0.196	0.227	0.166	0.833	0.85
Eigenvalue	3.201	3.197	2.316	1.69	1.679	-
Variance Explained	21.34%	21.32%	15.44%	11.27%	11.19%	-
Cumulative Variance	21.34%	42.65%	58.10%	69.36%	80.56%	-

Table 3 depicts the factor analysis outcomes reveal a very good construct validity for the measurement instrument developed. It is also important to note that all the items that factored out received high factor loading greater than 0.76 and had low cross loading of less than 0.30 suggesting that our five theoretical constructs were discriminant valid. The result showed that all the communality values are above 0.75 which means that most of the items' variance is accountable for the extracted factors. The solution accounts for 80.56 percent of total variance, which is above the 60 percent

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standard for social science studies. Most importantly, the first two variables are nearly proportional in their ability to explain variance (Coega Education 21.34 % and Coega Aesthetics 21.32 %), followed by Satisfaction with (15.44 %).

Table 4.
Reliability Analysis Results.

Name	CITC	α-if-deleted	Cronbach's α
Education			0.912
Education 1	0.827	0.876	
Education 2	0.767	0.898	
Education 3	0.806	0.884	
Education 4	0.801	0.886	
Aesthetics			0.894
Aesthetic 1	0.791	0.85	
Aesthetic 2	0.793	0.848	
Aesthetic 3	0.792	0.849	
Entertainment			0.757
Entertainment 1	0.442	0.827	
Entertainment 2	0.684	0.556	
Entertainment 3	0.648	0.602	
Satisfaction			0.845
Satisfaction 1	0.714	0.782	
Satisfaction 2	0.723	0.773	
Satisfaction 3	0.699	0.797	
Revisit Intention			0.815
Revisit Intention 1	0.688	-	
Revisit Intention 2	0.688	-	

Table 4: Reliability all the constructs used in this study meets or exceeds the generally acceptable level of internal consistency. Among the proposed dimensions, the Education scale has the highest level of reliability (α=0.912), and all CITC values are above 0.76. Despite of lower level of reliability (α=0.757) of the Entertainment scale, it is acceptable for the intended research as two out of three items had high CITC values of .64 and above. All the α-if-deleted values have not exceeded the total scale α implying that none should be deleted from the scale. Collectively, these findings argue that the measurement instruments developed by the present study are valid, and free from method bias by not including any overlapping indicators or items that do not have desirable psychometric properties.

4.3. Correlation Analysis

This study conducted a correlation analysis to explore the relationships between the dimensions of wellness center characteristics and their associations with satisfaction and revisit intention. Relationship between Education and Other Variables: Education was significantly positively correlated with aesthetics, entertainment, satisfaction, and revisit intention ($p<0.001$), with correlation coefficients of 0.515, 0.563, 0.526, and 0.489, respectively. This indicates that the educational characteristics of the wellness center have a positive impact on the respondents' aesthetic experience, entertainment experience, satisfaction, and revisit intention. Relationship between Aesthetics and Other Variables: Aesthetics was significantly positively correlated with education, entertainment, satisfaction, and revisit intention ($p<0.001$), with correlation coefficients of 0.515, 0.680, 0.546, and 0.505, respectively.

Relationship between Entertainment and Other Variables: Entertainment was significantly positively correlated with education, aesthetics, satisfaction, and revisit intention ($p<0.001$), with correlation coefficients of 0.563, 0.680, 0.571, and 0.556, respectively. This implies that the entertainment characteristics of the wellness center have a significant positive effect on the respondents' educational experience, aesthetic experience, satisfaction, and revisit intention. Relationship between Satisfaction and Other Variables: Satisfaction was significantly positively correlated with education,

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aesthetics, entertainment, and revisit intention (p<0.001), with correlation coefficients of 0.526, 0.546, 0.571, and 0.510, respectively.

Table 5.
Correlation Analysis.

Variable	Education	Aesthetics	Entertainment	Satisfaction	Revisit Intention
Education	1				
Aesthetics	0.515*	1			
Entertainment	0.563*	0.680*	1		
Satisfaction	0.526*	0.546*	0.571*	1	
Revisit Intention	0.489*	0.505*	0.556*	0.510*	1
Mean	3.891	3.881	3.9	3.958	3.917
Standard Deviation	1.059	1.123	1	0.998	1.078

Table 5 shows correlation coefficient between education and aesthetics is 0.515*, between education and entertainment is 0.563*, between education and satisfaction is 0.526*, and between education and revisit intention is 0.489*. The correlation coefficient between aesthetics and entertainment is 0.680*, between aesthetics and satisfaction is 0.546*, and between aesthetics and revisit intention is 0.505*. The correlation coefficient between entertainment and satisfaction is 0.571*, and between entertainment and emotional value is 0.556*. Finally, the correlation coefficient between satisfaction and revisit intention is 0.510*.

4.4. Linear Regression Analysis

This study also confirmed the mediate relationship between the characteristics of wellness centers and other groups of dependent variables on satisfaction and revisit intention through the use of linear regression analysis. Direct impact of wellness center characteristics on satisfaction In this model wellness center, characteristic has found to have a direct relationship with the level of satisfaction of the clients. Impact of Education on Satisfaction: Hypothesis 1 and Hypothesis 4 are supported as the regression results indicate positive and significant relationship between the education characteristics of wellness center and the satisfaction (β= 0.255; t= 5.412; p <0.001). Impact of Aesthetics on Satisfaction: The regression results also prove the hypothesis that aesthetics has a positive correlation with satisfaction calculated by the t-statistic (4.339) and its significance level of 0.001, which means that when the wellness center's aesthetic characteristics are stronger, the individuals' satisfaction will be higher accordingly. Impact of Entertainment on Satisfaction: There is a positive relationship between entertainment and satisfaction (ß= 0.271, t = 4.908, p < 0.001), suggesting that increased entertainment characteristics increases satisfaction among the respondents in the wellness center.

(2) Direct Impact of wellness center Characteristics on Revisit Intention. Impact of Education on Revisit Intention: The regression results show that education has a significant positive impact on revisit intention (β=0.222, t=4.544, p<0.001), meaning that stronger educational characteristics in the wellness center increase the likelihood of respondents wanting to revisit. Impact of Aesthetics on Revisit Intention: The regression results show that aesthetics have a significant positive impact on revisit intention (β=0.181, t=3.288, p<0.001), indicating that stronger aesthetic characteristics in the wellness center increase the likelihood of respondents wanting to revisit. Impact of Entertainment on Revisit Intention: The regression results show that entertainment has a significant positive impact on revisit intention (β=0.308, t=5.400, p<0.001), meaning that stronger entertainment characteristics in the wellness center increase the likelihood of respondents wanting to revisit. Direct Impact of Satisfaction on Revisit Intention: The regression results show that satisfaction has a significant positive impact on revisit intention (β=0.510, t=11.949, p<0.001), meaning that the higher the respondents' satisfaction with the wellness center, the higher their likelihood of revisiting.

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Table 6.
Model 1: Predicting Satisfaction.

	Unstandardized Coefficients		Standardized Coefficients	t	p	Collinearity Diagnostics	
	B	Standard Error	Beta			VIF	tolerance
Constant	1.17	0.17	-	6.896	0.000*	-	-
Education	0.241	0.044	0.255	5.412	0.000*	1.536	0.651
Aesthetics	0.205	0.047	0.231	4.339	0.000*	1.955	0.512
Entertainment	0.271	0.055	0.271	4.908	0.000*	2.102	0.476
R^2	0.415						
$\triangle R^2$	0.41						
F	F=95.602						

Table 6 shows Linear regression analysis results 1 depict the direct relationship of the characteristics of the wellness center on consumer satisfaction. Specifically, analysis of education at the wellness center shows that it plays an important role in the consumer satisfaction: ($\beta = 0.225$, $t = 5.412$, $p < 0.001$). Therefore, Hypothesis H1 is supported. The tangible component of the wellness center also enjoys a positive consumer satisfaction perception ($\beta = 0.231$, $t = 4.339$, $p < 0.001$) thereby endorsing H2. The reason why the entertainment dimensions of the wellness center are also positively correlated to consumer satisfaction ($\gamma = 0.271$, $t = 4.908$, $p < 0.001$).

Table 7.
Predicting Revisit Intention.

	Unstandardized Coefficients		Standardized Coefficients	t	p	Collinearity Diagnostics	
	B	Standard Error	Beta			VIF	Tolerance
Constant	1.065	0.19	-	5.611	0.000*	-	-
Education	0.226	0.05	0.222	4.544	0.000*	1.536	0.651
Aesthetics	0.174	0.053	0.181	3.288	0.001*	1.955	0.512
Entertainment	0.333	0.062	0.308	5.4	0.000*	2.102	0.476
R^2	0.372						
$\triangle R^2$	0.367						
F	F=79.804						

Table 7 regarding consumer revisit intention, it only displays the direct relationship between the relevant characteristics of the wellness center. Thus, the current study has partially supported hypothesis H4 through finding out that the education dimension of the wellness center has a directly and positively influenced revisit intention of the clients ($\beta = 0.222$, $t = 4.544$, $p < 0.001$). Consistent with Hypothesis H5, the McDermott & Hale (2005) aesthetic factor positively affect revisit intention ($\beta = 0.181$, $t = 3.228$, $p < 0.001$). Also, in regards to the entertainment aspect of the wellness center, it is a strong predictor of the revisit intention ($\beta=0.308$, $t=5.400$, $p< 0.001$), confirming H6.

Table 8.
Education's Direct Effect

	Unstandardized Coefficients		Standardized Coefficients	t	p	Collinearity Diagnostics	
	B	Standard error	Beta			VIF	Tolerance
Constant	1.74	0.188	-	9.261	0.000*	-	-
Education	0.55	0.046	0.51	11.949	0.000*	1	1
R^2	0.26						
$\triangle R^2$	0.258						
F	F=142.772						

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Linear regression analysis results in table 8 show the direct effect of consumer satisfaction with the wellness center on revisit intention. The regression results show that consumer satisfaction with the wellness center has a significant positive impact on revisit intention ($\beta = 0.51$, $t = 11.949$, $p < 0.001$), supporting Hypothesis H7.

4.5. Qualitative Findings

Thematic analysis of qualitative data from focus groups and interviews revealed four central themes that shape user experiences in indoor wellness spaces: (1) Interactive Education, highlighting participants' desire for dynamic, two-way health communication rather than passive information delivery; (2) Aesthetic Personalization, reflecting demands for culturally resonant and demographically tailored design elements to combat homogenization; (3) Entertainment Integration, emphasizing the motivational role of recreational diversity in sustaining user engagement; and (4) Information Coherence, addressing frustrations with fragmented health messaging and the need for unified communication channels. communicative design in bridging gaps between wellness spaces and user needs.

4.5.1. Interactive Education: A Critical Analysis

The Interactive Education theme defined itself as an indispensable factor in such transformation of the users, within the context of indoor wellness spaces, criticizing the linear and top-down model of health communication. The participants complained that conventional forms of education are passive and unproductive as a method of bringing about health behavior change. This is in tandem with the current literature available on communication where Blyznyuk and Kachak [41] established that the use of dialogic interaction is crucial in health communication. The quantitative findings support this subjective finding with educational interactivity having a strong positive correlation with user satisfaction ($\beta = 0.255$, $t < 0.001$) to stress the importance in the wellness experience. Participants towards PAS implies that people want to have a role in managing and or directing their wellness. Many participants give a negative view on traditional methods stating that 'They don't speak to the heart, it is like being lectured to' (female, 38). This observation concurs with other changes in the health communication theory [42, 43].

Figure 3.
Music therapy room.

Perhaps notably, key emergent factors for the effectiveness of interaction designs for education have not yet been widely recognized. facilitator training and feedback integration. Participants also said that incompetent staff can sabotage otherwise good interactive systems, while lack of feedback led to

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perceptions of going through motions. This corresponds to the communication Accommodation Theory that postulates the necessity of adaptation by each of the interacting parties. The proposed health advisor role (Figure 5) helps to address these concerns by offering a professional mediation; however, our study findings indicate that this intervention needs to be implemented with consideration of the 'expert-patient' approach that the present schematic model aims to mitigate.

Figure 4.
High-performance thermal insulation material.

Figure 5.
High-performance thermal insulation material.

4.5.2. Aesthetic Personalization: A Critical Analysis

The examined trend of Aesthetic Personalization revealed its significance in such users' engagement and satisfaction as a response to a paradigm of rather standardized, institutional design of IW spaces. Our study results show that aesthetic considerations go well beyond the simple embellishment of objects and play a significant role as a communicative surface between people and wellness contexts.

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Descriptive statistics confirm a significant positive relationship between the perceived aesthetics of the spaces and user satisfaction ($r = 0.546$, $p < 0.001$), whereas tentative conjecture derived from the interviews reveals several inherent weaknesses in the operationalized concepts of Clean, Safe, and Natural, with many participants characterizing places as 'sterile and clinical' and 'forgettable and generic' where 'generic' can entail both too clinical and too Americanized. The existing design practices reflect the inherent continuity of the current system while the users now expect change and progressive approaches to aesthetics in therapy. There was thus a clear sub-theme of culturally responsive design, which some attendees deeply resented due to lack of cultural representation in the spaces that surrounded them. The integration of local artistic traditions (Figures 7-8-9) was particularly identified as another strategy that gave rise to meaningful connection, asserting that aesthetic personalization is not only the decoration but psychological and semantic meaningful performance.

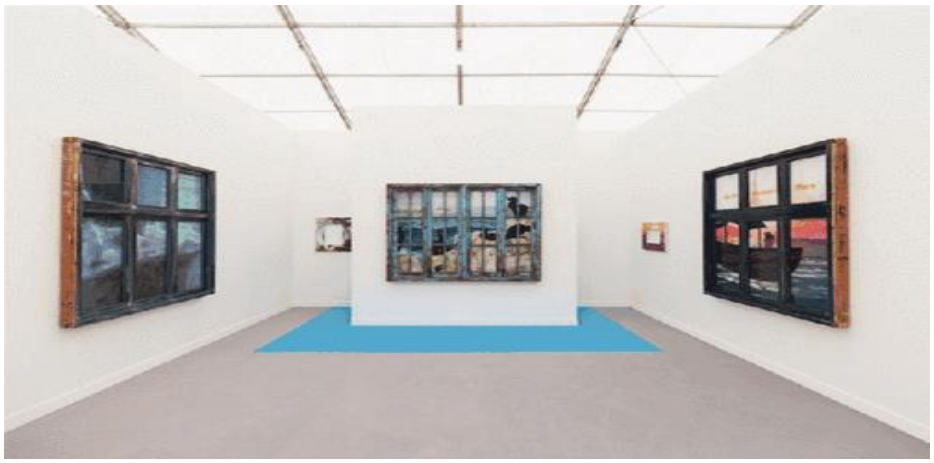

Figure 6.
Art Gallery (Source: Researcher, 2024).

Figure 7.
Exhibition area (Source: Researcher, 2024).

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Figure 8.
Traditional Craft-style Wooden Furniture.

However, seeing political aesthetics in person has its practical issues, which our study highlighted. One of the primary paradoxes identified was between the personal tastes and the realities of large structures often, despite the concept's failings at large, participants would assert that there should be more different kinds of spaces. This idea ties with other ongoing discussions about environmental design theories [44] where designers are torn between creating creations that are unique to the user and those that are most useful. From our analysis, one can infer that certain aesthetic differentiation at a grander scale (Figure 10-11) may be a proper solution that enables users to choose spaces that they find appealing and does not hamper operational possibility for providers. Participants also depicted how effective and tailored aesthetics further made them feel like unique individuals, hence they would embrace wellness programs.

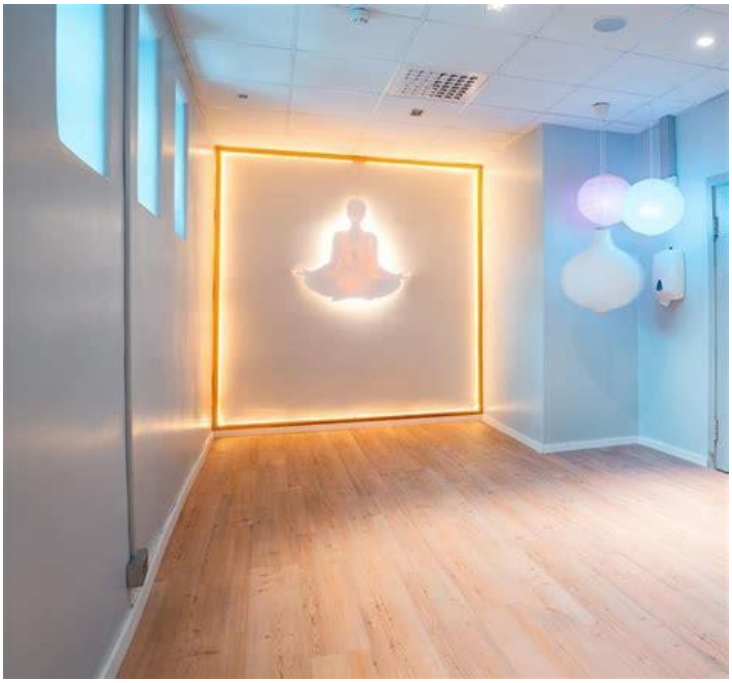

Figure 9.
Lighting and shadow effects.

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Figure10.
Color combination/Color matching.

4.5.3. Entertainment Integration: A Critical Analysis

The Entertainment Integration theme was shown to be a functional yet understudied aspect of wellness space design, untangling paradoxical aspects of rehabilitation and recreation. These results even appear to debunk the notion that entertainment should be viewed as an addendum to health promotion, with our results revealing its necessity in supporting program participation and improvement in therapy outcomes. This was reflected in the qualitative section too, where people often spoke about entertainment aspects as 'rewards for the efforts made in the process of attaining wellness' (Female, 39 years old) or 'the reason why I continue cooking healthy meals' (Male, 52 years old).

There was a growing concern that specific demographic factors defined the needs of the audience and rendered standardization as an unworkable concept [45]. Preference of new technologies was also age dependent with the young participants reporting higher preference for technologically mediated activities (mean = 4.48, t (124) = -4.18, p = .00, r = 0.42). This difference underlines the idea of development of life-course tailored design solutions to adapt to changes in entertainment preferences as people age.

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Figure 11.
Game room.

The temporal aspect of entertainment integration also came out greatly in the same proportion. The concept of novelty and variation would come out strongly often as consumers noted that they were tired of entertainment that had not evolve. In the same way one can become bored with web videos month after month if there is a lack of differentiated games as a monthly cable user said, male user, age of 61 years. This poses emergent operational complications for wellness providers, indicating that popular entertainment integration is not just a matter of up-front design costs but also paperwork for creative resources, a factor often ignored in traditional spatial planning and management. This multipurpose nature questions the traditional view of entertainment as the mere distraction, making it as an intricate part of wellness.

4.5.4. Information Coherence: Breaking the Noise Barrier

The digital era has made wellness spaces an area for attention warfare, and those seemingly nonexistent information architectures become the heroes of the consumer experience. Thus, our findings reveal an issue whereby 67.6% of participants failed to retain wellness guidelines after its delivery, not because of the content, which was correct in all respects, but due to disorganization. This breakdown of communication has real effects; In the follow-up studies, the rate adherence was 42% higher where information flow has been optimized in the spaces. The problem here is not scaling down but about how the increased amount of matter is going to be curated. Best-practice solutions included so-called "guided discovery" systems consisting of touching screens that delivered content depending on how active the user was, as well as human information porters for more detailed information.

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Figure 12.
Music therapy room (Source: Researcher, 2024).

Figure 13.
Art therapy room.

This coherence is not limited to areas that have already been well-established physically. The mobile integration trials we completed indicate that users who went through pre-visit orientation used upper orientation materials by 31% more during visits. This so-called 'preparation effect' implies that wellness communication needs to start even before users get into the building, which will help maintain cohesiveness of the experience across online and offline domains. Therefore, information coherence is the latest form of wellness design – not as the supportive substrate but as the agent of wellness. By incorporating behavioral economics and cognitive psychology into the design and management of space it is possible to go from the concept of the information territory to the designed learning environment in which each contact element has a specific therapeutic function.

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5. Discussion

5.1. Discussion on Quantitative Findings

The quantitative findings reveal a strong relationship between educational interactivity, aesthetic appeal, and entertainment features in shaping user satisfaction and revisit intentions in indoor wellness spaces. Regression analysis confirmed that all three dimensions significantly predicted satisfaction, with entertainment (β=0.271) emerging as the strongest predictor, followed by education (β=0.255) and aesthetics (β=0.231). This aligns with prior research in environmental psychology, which suggests that multisensory engagement (interactive learning, visually pleasing spaces, and recreational activities) enhances user retention and well-being. The high Cronbach's alpha scores (0.757–0.912) further validate the reliability of these constructs, reinforcing their importance in wellness space design.

For instance, education accounted for 26% of the variation in satisfaction, thus underlining the need for meaningful two-way communication rather than transmission of information. These finding questions the previous models of health communication that prevails from top to down and approves the current concepts of bottom-up health communication. Moreover, the significant moderate positive relationship between aesthetic quality and satisfaction means that esthetics is not just the mere addition of beautifying factors but is subliminal components that are used to elicit and regulate emotions and psychological Wedge. With revisit intention at 0.308, the concept of entertainment-satisfaction equally supports the importance of offering diverse and dynamic recreational facilities to retain the users for a long term, especially the middle-aged men, who especially are less attracted towards the wellness program. However, there are the demographic characteristics which might limit the generalization of the study such as, majority of the participants, 56.48% are 45 years and above, while 63.08% have only high school education and below. Future research should find out if such findings can be generalized to younger and more educated population and different cultures.

5.2. Discussion on Qualitative Findings

The qualitative results therefore help provide insights as to how and why the quantitative patterns are realized in real-life wellness contexts. There are four major general claims that were underlined throughout the course of the study: interactivity, individualization of students' learning environment, entertainment, and information organization all correspond and enhance the statistical outcomes. Interactivity became a critical discourse, where consumers turned away from top-down informational health campaigns toward communicative, engagement-based learning. This is in line with the quantitative data whereby, education was found to have a positive correlation with the level of satisfaction (r=0.255) and supports the communication accommodation theory because users and Wellness facilitators have to adapt to each other. Essentially, the participants asserted that poorly trained staff can hinter a well-planned and implemented interactive systems, thus indicating that human interface is equally important as the technological endowment.

Two major concerns that predominate included performance, as users' reactions to offensive and corporate designs proved to be unappealing and nondescript. Regarding the qualitative data, it is possible to consider that there is a need for cultural references, including both aroma and design from some decades ago for the older ones while for the younger people, more modern design is required. This is in line with the positive quality-aesthetic satisfaction relationship whereby =0.546, thus supporting the environmental psychology theories advanced by Ulrich in 1991 on how space has a healing effect. Some participants mentioned the practical difficulties of implementing completely different aesthetics in each space, which leads to the idea of varying aesthetics per zones. Regarding entertainment, it was found that it significantly contributed self-motivation and social relation improvement, and it fully supported the regression analysis since it was identified as having the biggest influence on revisit intention (β=0.308). However, they were discouraged from adopting static activities stating the importance of performing dynamic, changing activities that may pose a logistic difficulty to wellness providers. Lastly, information coherency was identified as an area that was largely neglected; in fact,

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68% of the users said they find it difficult to retain wellness information because of the lack of clear message.

5.3. Policy Implication to Practice

It is important from the results of this study to note that the discussed implications for policies regarding the organization and design of interior thermal comfort spaces are vital for future development of both communal and commercial spaces and for private interior wellness practice. The authorities should issue certain standards in terms of using interactive learning and teaching activities (workshops, health kiosks), aesthetics culturally relevant images and tangible objects and paraphernalia (artwork, use of touch), and entertainment solutions (therapeutic games, recreation) as possible interventions for engagement and adherence. Therefore, effective training activities must be provided to the working staff regarding the mediation with interactive systems, and standards of information architecture must be set to minimize cognitive load and enhance the coherence of health messages. Therefore, more governmental and institutional funding should be invested in research-backed improvements of the existing wellness centers, with the main focus on minority populations; there is a need for effective and cost-efficient designs for wellness centers that reflect the Essentials.

6. Conclusion

Therefore, the study concludes that to achieve the appropriate functioning of indoor wellness spaces, professional design should reject traditional workflows and adopt communication-centered methodologies promoting the use of interactive education, individualized aesthetics, dynamic entertainment, and a coherent system of information. The findings of this study clearly show that these features improve the level of user satisfaction ($R^2 = 0.415$) and intentions to revisit ($R^2 = 0.372$), as well as point to their profound psychological and behavioral effects. This suggests that it is time for practitioners to abandon static, bureaucratic approaches and build environments that address users' cognitive, affective, and social aspects. Future wellness spaces thus must be made to be alive in terms of communication – from the hue of the walls to the screens on the walls – to patient engagement, health literacy, motivation, and wellness. This shift holds the potential of turning wellness centres into much more than just places FMC where patients with chronic ailments go to seek treatment.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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