

Analysis of User Experience Usage on the Sardjito Hospital and Yogyakarta Regional Public Hospital Websites Using the User Experience Questionnaire (UEQ)

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ABSTRACT

The user experience of healthcare websites is crucial for ensuring accessibility, usability, and engagement among diverse stakeholders, including patients, caregivers, and healthcare professionals. This study evaluates the RS Sardjito and RS Jogja websites using six key dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. Both websites excel in Attractiveness and Perspicuity, showcasing visually appealing and user-friendly platforms. RS Sardjito demonstrates strength in Efficiency, enabling effective task completion, while RS Jogja outperforms in Dependability and Novelty, reflecting higher reliability and innovation. However, areas for improvement include Novelty and Dependability for RS Sardjito and Efficiency for RS Jogja, with both platforms requiring enhancements in Stimulation to deepen user engagement through interactive features. These findings offer actionable insights for driving policy development in healthcare website design and functionality, addressing key areas such as accessibility, usability, efficiency, reliability, and innovation. Policies should prioritize user-centered design principles, implement robust security measures to strengthen reliability, and encourage creative approaches to foster innovation. Additionally, regular benchmarking and user feedback mechanisms should be institutionalized to ensure continuous improvement. By systematically addressing these dimensions, healthcare organizations can optimize digital platforms to improve access to healthcare services, enhance patient engagement, and advance the overall quality of healthcare delivery, contributing to the growing body of research on healthcare website optimization and aligning user experience with organizational goals.

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1. INTRODUCTION

In the increasingly advanced digital era, the presence of a website for healthcare institutions like hospitals is no longer merely supplementary but an essential strategic necessity. Hospitals play a vital role in improving public health, making service quality central to their operational sustainability. In this context, a website functions as the primary "virtual gateway" and the first point of access for patients and their families, which is crucial for providing information, services, and support. Therefore, the effectiveness of a hospital website is paramount, as it directly influences how easily patients can access services, make decisions, and interact with healthcare providers [1], [2], [3], [4], [5].

A hospital website has transcended the function of an online brochure, transforming into a digital representation and a vital interaction hub between the hospital and the community. A well-designed website serves as the frontline for delivering accurate and reliable health information, facilitating access to medical services, and building strong relationships between patients and providers. The key to this success lies in the User Experience (UX). UX encompasses the entire user journey when interacting with the website, from ease of navigation and appealing visual design to the speed of information access. An intuitive and easily navigable design can simplify the process of finding service information, doctor schedules, and registration procedures, while a professional visual appearance can enhance the hospital's positive image and patient trust [6], [7], [8], [9], [10], [11].

To achieve an optimal UX, the User Interface (UI) design is a critical aspect that must be carefully considered. A good UI not only influences user perception but also the overall efficiency of the system, including the Hospital Management Information System (HMIS). For example, SIMRS Khanza is one system capable of accurately integrating the flow of hospital service information. Approaches like the Design Thinking method are used to deeply understand user needs from defining problems, generating solution ideas, and creating prototypes, to testing in order to improve usability and operational efficiency [12], [13], [14], [15], [16], [17].

A comprehensive evaluation method is required to measure and ensure the quality of the user experience. One of the most frequently used instruments in this context is the User Experience Questionnaire (UEQ). The UEQ allows for a holistic evaluation by measuring six key dimensions: Attractiveness (visual appeal), Perspicuity (clarity), Efficiency (speed of use), Dependability (controlled and predictable), Stimulation (exciting and motivating), and Novelty (innovative). This method provides solid quantitative data on user perceptions of the website interface, which is invaluable for design improvements [18], [19], [20], [21], [22], [23].

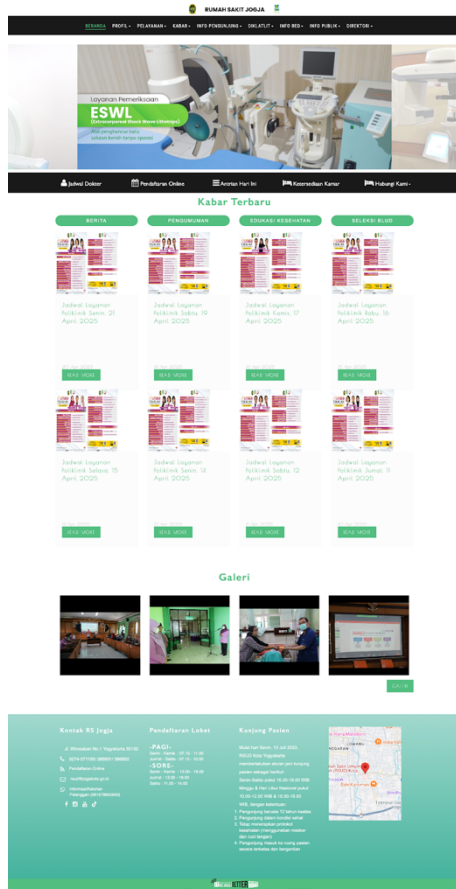
Previous studies applying the UEQ have shown an interesting pattern of findings. Many systems, from language learning apps like Duolingo to public service applications, often score well on efficiency and clarity but are weak in novelty and stimulation. This indicates that while functional, many websites and applications fail to provide a fresh and engaging experience to maintain long-term user interest. In Indonesia, the validity of using the UEQ has been proven, as seen in the evaluation of the Indorelawan.org website and the adaptation of the UEQ+ scales for the local context, demonstrating that this instrument is reliable for measuring user experience on digital products in Indonesia [24], [25], [26].

This research is vital for supporting local healthcare institutions, such as Sardjito Hospital and Yogyakarta Regional Public Hospital, by ensuring their digital platforms align with the evolving needs of their users. As healthcare providers play a critical role in delivering accessible and efficient services to the community, their websites serve as essential tools for facilitating patient engagement, scheduling, and information access. By analyzing the user experience (UX) of these websites using the User Experience Questionnaire (UEQ), this study provides actionable insights into areas of improvement, enabling these institutions to modernize their digital presence and remain competitive in an increasingly digital healthcare landscape. A well-designed and user-friendly website not only enhances patient satisfaction but also strengthens the institutional reputation, fostering trust and reliability among users.

The novelty of this research lies in its comparative analysis of user experience (UX) on hospital websites, specifically Sardjito Hospital and Yogyakarta Regional Public Hospital, using the User Experience Questionnaire (UEQ). While prior studies have explored the role of UX in healthcare, most have focused on individual platforms or broader digital health tools, such as mobile health applications [27]. Few studies have systematically compared the UI/UX performance of multiple hospital websites within a specific regional context, particularly in Indonesia, where digital healthcare adoption is still in its early stages [28]. This research fills that gap by evaluating and comparing the strengths and weaknesses of government hospital websites in Yogyakarta, providing insights into their effectiveness in serving diverse user groups, including patients, caregivers, and prospective patients. Additionally, the use of the UEQ as a standardized tool for UX evaluation adds methodological rigor, as demonstrated in studies like Schrepp et al [29], which validated the UEQ for assessing user satisfaction across various domains. By situating the study within the

socio-cultural and technological challenges faced by healthcare institutions in Yogyakarta, this research contributes practical recommendations tailored to local needs while advancing the broader field of UX research in healthcare.

Furthermore, this research serves as a foundation for driving policy and design improvements in healthcare website development. The findings will highlight key strengths and weaknesses of the current platforms, offering evidence-based recommendations for enhancing usability, accessibility, and inclusivity. Policymakers can leverage these insights to establish guidelines for the development of digital healthcare tools that prioritize user needs and promote equitable access to services. Designers and developers can use this feedback to create intuitive, efficient, and engaging platforms that cater to diverse user groups, including patients, caregivers, and healthcare professionals. Ultimately, this research contributes to the broader goal of improving healthcare delivery by ensuring that digital tools are optimized to support both institutional growth and community health outcomes.



(a)



(b)

Figure 1. The Main Interface of RS Jogja (a) and RS Sardjito (b)

2. RESEARCH METHOD

The research methodology involves seven stages: problem identification, literature review, research design, data collection, data analysis, results interpretation, and finally, recommendations. The seven stages of the research methodology are presented on the Figure 2 below:

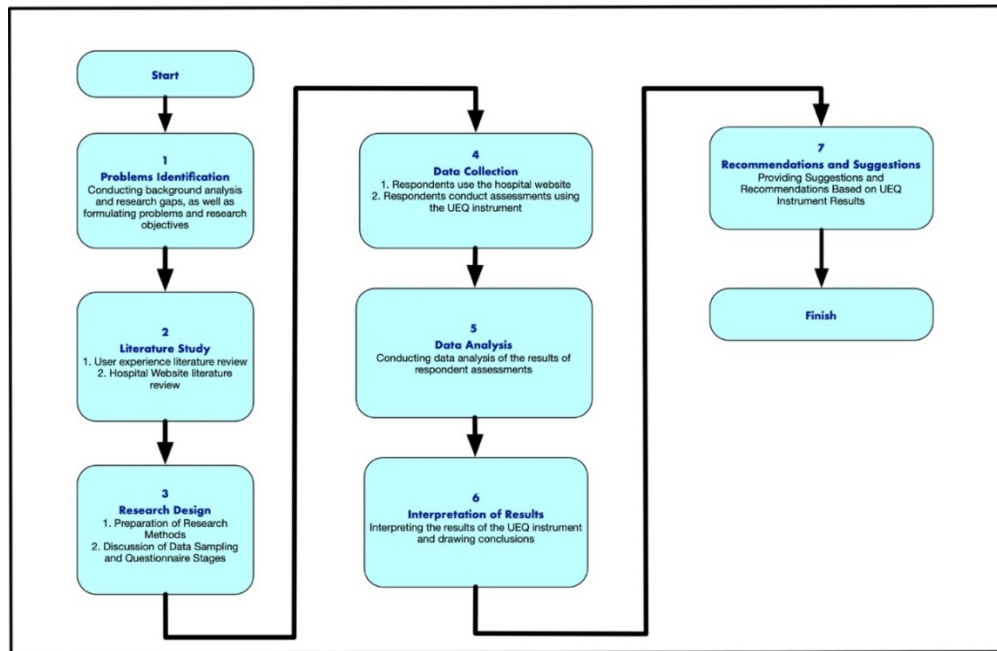


Figure 2. Research Methodology Diagram

1. Problem Identification

The initial stage of this research involves identifying structured problems related to the UI/UX of hospital websites, specifically those of Sardjito Hospital and Yogyakarta Regional Public Hospital. This stage is critical as hospital websites often serve as the primary resource for patients, caregivers, and prospective patients seeking quick and accurate information about healthcare services. By identifying existing issues surrounding the strengths and weaknesses of these websites, the research focuses on evaluating how effectively they meet user needs. The primary objective is to assess and improve the ease of use, ensuring that users can efficiently navigate the websites to access essential information and services.

2. Literature Review

The literature review provides a comprehensive theoretical foundation for the research, enabling an in-depth exploration of studies relevant to hospital website design, user experience (UX), and user interface (UI). This stage synthesizes academic perspectives on UX evaluation methodologies, including the User Experience Questionnaire (UEQ), to establish a robust framework for the study. By grounding the research within existing literature, this stage ensures academic rigor and contextualizes the study within broader discussions on healthcare digitalization and user-centered design principles.

3. Research Design

The research design outlines the systematic approach to planning and executing the study. Employing a quantitative methodology, this stage focuses on comparing the user experience of government hospital websites in Yogyakarta. The researcher selected Sardjito Hospital and Yogyakarta Regional Public Hospital as case studies to ensure relevance to local healthcare institutions. Sampling strategies are determined to include diverse user groups, while appropriate tools and instruments, such as the UEQ, are chosen to ensure valid and reliable data collection. This stage provides a structured roadmap for collecting, measuring, and analyzing data.

4. Data Collection

Data collection is a pivotal stage aimed at gathering user-based data to objectively compare the online services provided by the two hospital websites. Both UI and UX aspects are examined to evaluate user satisfaction, ease of navigation, and overall functionality. By focusing on user-based

feedback, the research captures real-world interactions and perceptions, offering valuable insights into how each website performs in meeting user expectations. The population targeted in this study consists of users who actively interact with the RS Sardjito and RS Jogja websites, including patients, caregivers, and general visitors seeking healthcare-related information or services. The sample of respondents was selected using purposive sampling, ensuring that participants had prior experience using one or both websites. This approach allows the study to focus on individuals who can provide informed feedback based on their interactions, thereby ensuring the reliability and relevance of the collected data.

5. Data Analysis

The data analysis stage involves processing the raw data collected during the previous phase to extract meaningful insights and provide an evidence-based evaluation of the performance of the Sardjito Hospital and Yogyakarta Regional Public Hospital websites. Quantitative analysis techniques, such as comparative testing, are employed to systematically assess and compare the effectiveness of the UI/UX aspects of both platforms. This stage aims to identify measurable differences in user satisfaction, ease of navigation, and overall functionality, highlighting areas of strength and areas requiring improvement. Additionally, descriptive statistical methods are utilized to summarize the data and provide a comprehensive overview of key trends and patterns. Statistical measures, including mean, median, standard deviation, and frequency distribution, are applied to analyze user responses across various dimensions. The application of descriptive statistics is justified as it enables researchers to effectively organize and present the data in a clear and interpretable manner, facilitating the identification of central tendencies and variability within the dataset. Furthermore, descriptive statistics serve as a foundational tool for subsequent inferential analysis, ensuring that the comparative evaluation is grounded in a robust understanding of the dataset's fundamental characteristics.

6. Results Interpretation

Results interpretation is the stage where analyzed data is translated into meaningful conclusions. Using the quantitative results obtained through the UEQ, the study provides a comparative score that reflects the performance of both websites. This interpretation highlights specific strengths and weaknesses, offering a clear understanding of how each website supports or hinders user needs. The findings serve as the basis for actionable insights aimed at improving the user experience of hospital websites.

7. Recommendations

Based on the interpreted results, this stage generates evidence-based recommendations to enhance the UI/UX of both hospital websites. Suggested improvements may include designing more intuitive interfaces, simplifying navigation pathways to enable users to find information with ease, and optimizing content to be engaging and relevant. These recommendations aim to support local healthcare institutions by improving their digital platforms, ensuring they provide accessible and user-friendly services to their communities. Furthermore, the findings contribute to broader discussions on healthcare website design, driving policy and design improvements for similar institutions.

3. RESULTS AND DISCUSSION

This study collected user experience data from 60 respondents representing diverse demographic backgrounds, all of whom are directly relevant to the focus of this research. The demographic categories include age groups (20–45 years), education levels (Bachelor's degree students, vocational trainees, workers, and managerial professionals), audience types (patients, caregivers, and the general public), gender distribution, and familiarity with websites. These varied backgrounds ensure that the data captures insights from individuals with differing levels of expertise, roles, and experiences, all of which are integral to understanding the user experience of healthcare websites. For instance, patients, who form the largest audience type (42%), provide critical feedback on the usability of systems designed to deliver medical information, while

caregivers (25%) and the general public (33%) contribute perspectives on accessibility and engagement. The inclusion of respondents from diverse age groups and educational levels further strengthens the relevance of the data to this study. The largest age group, 36–45 years (42%), likely reflects users who frequently interact with healthcare websites for practical purposes, emphasizing dimensions such as Efficiency and Dependability. Meanwhile, younger users aged 20–25 years (25%) may provide insights into the importance of Attractiveness and Novelty, highlighting the need for visually appealing and innovative designs. Educational diversity, ranging from ongoing Bachelor's degree students (25%) to managerial professionals (25%), ensures that the study gathers perspectives from users with varying levels of familiarity and expertise in navigating complex systems. This diversity is particularly relevant for healthcare websites, which must cater to both novice users and professionals seeking advanced functionalities. The respondent data aligns closely with the objectives of this study, as it represents individuals who are directly impacted by the usability of healthcare systems. High familiarity with websites among respondents (83%) indicates that the feedback reflects informed opinions from users who are experienced in interacting with digital platforms. Additionally, the gender distribution, with males comprising 58% and females 42%, ensures that the study captures perspectives across gender lines, contributing to a balanced evaluation. By gathering data from respondents with varied and relevant backgrounds, this study provides a comprehensive foundation for analyzing user experience dimensions such as Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. These insights are critical for developing targeted recommendations to improve healthcare website design and functionality, ensuring they meet the needs of all user groups effectively.

3.1. Reliability Test

The reliability testing conducted in this study seeks to evaluate the consistency of the data collected through the questionnaire in accurately reflecting the intended information. Cronbach's Alpha is utilized as the primary indicator of reliability for each variable, with calculations performed using the alpha coefficient formula. According to established criteria, a variable is deemed reliable if its Cronbach's Alpha value exceeds 0.60. The results of the reliability analysis for each variable in this study are detailed in the table below.

Table 1. Cronbach's Alpha Value for RS Sardjito UEQ

Variable	Cronbach Alpha	Result
Attractiveness	0,86	Reliable
Perspiciuity	0,73	Reliable
Efficiency	0,71	Reliable
Dependability	0,64	Reliable
Stimulation	0,75	Reliable
Novelty	0,51	Reliable

Table 2. Cronbach's Alpha Value for RS Jogja UEQ

Variable	Cronbach Alpha	Result
Attractiveness	0,86	Reliable
Perspiciuity	0,69	Reliable
Efficiency	0,81	Reliable
Dependability	0,84	Reliable
Stimulation	0,79	Reliable
Novelty	0,74	Reliable

The reliability analysis of the User Experience Questionnaire (UEQ) for RS Sardjito and RS Jogja websites reveals varying levels of internal consistency across six dimensions, as measured by Cronbach's Alpha. Both websites demonstrate high reliability in dimensions such as Attractiveness (0.86 for both) and Stimulation (0.75 for RS Sardjito and 0.79 for RS Jogja), indicating strong consistency in assessing visual appeal and user engagement. RS Jogja exhibits higher reliability in Efficiency (0.81) and Dependability (0.84) compared to RS Sardjito (0.71 and 0.64, respectively), suggesting that users perceive RS Jogja as more effective and trustworthy in supporting task completion and reliability. However, the Novelty dimension shows weaker reliability for RS Sardjito (0.51), indicating potential issues with the consistency of items measuring innovation, while RS Jogja achieves a more acceptable score (0.74). These findings suggest that while both

websites perform well in fostering user engagement and trust, RS Sardjito may benefit from refining questionnaire items for dimensions such as Novelty to improve measurement consistency. Future research should focus on enhancing the reliability of weaker dimensions and ensuring robust measurement across all constructs to optimize user experience evaluation.

3.1. Descriptive Statistics

The research titled "Comparative Analysis of UI/UX on the Websites of Sardjito Hospital and Jogja Hospital using the User Experience Questionnaire (UEQ)" involved an in-depth analysis of user responses to evaluate the usability and user experience of both hospital websites. The demographic data reveals a diverse representation of participants, providing valuable insights into the characteristics of hospital website users. Age distribution shows that the majority of participants are middle-aged, with 42% falling within the 36–45 age group, followed by 33% in the 26–35 age group, and 25% in the 20–25 age group. This range ensures that the study captures perspectives across different life stages, reflecting varied healthcare needs and digital behaviors. Middle-aged individuals, who likely represent a primary demographic for healthcare services, dominate the sample, while younger participants add insights into tech-savvy behaviors that could influence website usability. Gender distribution is also balanced, with 50% identifying as male, 42% as female, and 8% preferring not to disclose their gender or identifying as other. This diversity ensures that the study's findings are inclusive and applicable across genders, addressing potential differences in website interaction based on gender-specific preferences or needs. Education and professional backgrounds further emphasize the diversity of the sample. Participants are distributed across educational levels, with 25% pursuing a bachelor's degree, 17% having vocational training, 33% categorized as workers, and 25% in managerial roles. This variation ensures that the study accounts for individuals with differing levels of literacy, expertise, and professional exposure, which may influence their interaction with hospital websites. Additionally, the audience type distribution aligns closely with the target users of such websites, with patients comprising the largest group at 42%, followed by caregivers at 25%, and members of the general public at 33%. Familiarity with websites is notably high, with 83% of participants reporting familiarity, ensuring that the study captures feedback from users who are accustomed to navigating digital platforms. The inclusion of 17% of participants who are less familiar with websites provides insights into usability challenges that may arise for novice users. The demographic category is presented in Table 3. Overall, the descriptive analysis highlights a diverse and representative sample, enhancing the reliability of the findings and their applicability to improving hospital website design for varied user groups.

Table 3. The demographic category

Demographic Category	Details	Frequency (n)	Percentage (%)
Age	20-25 years	15	25%
	26-35 years	20	33%
	36-45 years	25	42%
Education Level	Bachelor's Degree (Ongoing)	15	25%
	Vocational Training	10	17%
	Workers	20	33%
	Managerials	15	25%
Audience Type	Caregivers	15	25%
	Patients	25	42%
	General Public	20	33%
Gender	Male	38	58%
	Female	25	42%
Familiarity with websites	Familiar	50	83%
	Not Familiar	10	17%

3.2. Confidence Intervals Based on UEQ Results Rumah Sakit Sardjito

The analysis of the RS Sardjito User Experience Questionnaire (UEQ) results provides a comprehensive evaluation of the six key dimensions of user experience: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty, based on responses from 35

participants. Among these dimensions, Attractiveness demonstrated a mean score of 1.590 with a confidence interval of 1.320 to 1.861, indicating that users found the system visually appealing and satisfying. Perspicuity, which assesses the ease of understanding and usability of the system, achieved a mean score of 1.379 with a confidence interval ranging from 1.078 to 1.679, reflecting positive perceptions of the system's intuitiveness. Efficiency, with a mean score of 1.429 and a confidence interval between 1.136 and 1.721, highlights the system's ability to facilitate effective task completion. Similarly, Dependability scored a mean of 1.407 with a confidence interval of 1.121 to 1.693, suggesting that users viewed the system as reliable and trustworthy. In terms of engagement and enjoyment, Stimulation received a mean score of 1.571, with a confidence interval of 1.267 to 1.876, indicating that users found the system moderately engaging. However, Novelty, which evaluates the system's creativity and innovation, scored the lowest mean of 0.986 with a confidence interval of 0.660 to 1.311, suggesting limited perceptions of originality and innovative design. The relatively narrow confidence intervals across all dimensions demonstrate consistency in user responses and the reliability of the data. These findings highlight the system's strengths in core functional dimensions such as Attractiveness, Perspicuity, Efficiency, and Dependability, while identifying areas for improvement in Stimulation and Novelty to enhance user engagement and innovation. Details of the confidence intervals for RS Sardjito are presented in Table 4. This analysis provides valuable insights for guiding future system enhancements to optimize user experience.

Table 4. The confidence intervals of RS Sardjito

Confidence intervals ($p=0.05$) per scale						
Scale	Mean	Std. Dev.	N	Confidence	Confidence interval	
Attractiveness	1,590	0,817	35	0,271	1,320	1,861
Perspicuity	1,379	0,906	35	0,300	1,078	1,679
Efficiency	1,429	0,882	35	0,292	1,136	1,721
Dependability	1,407	0,864	35	0,286	1,121	1,693
Stimulation	1,571	0,919	35	0,304	1,267	1,876
Novelty	0,986	0,983	35	0,326	0,660	1,311

Rumah Sakit Jogja

The results of the RS Jogja User Experience Questionnaire (UEQ) provide significant insights into the evaluation of the six key dimensions of user experience: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. The analysis reveals that Efficiency achieved the highest mean score of 1.619, with a confidence interval ranging from 1.360 to 1.878, indicating that users perceived the system as highly effective in facilitating task completion. Similarly, Perspicuity scored a mean of 1.496, with a confidence interval between 1.272 and 1.719, suggesting that users found the system intuitive and easy to understand. Dependability, with a mean of 1.479 and a confidence interval of 1.234 to 1.723, reflects positive user perceptions regarding the system's reliability and trustworthiness. Attractiveness, which scored a mean of 1.291 with a confidence interval of 1.056 to 1.526, demonstrates that users generally found the system visually appealing and satisfying. However, Stimulation and Novelty received lower scores, with means of 1.106 (confidence interval: 0.828–1.384) and 0.729 (confidence interval: 0.476–0.981), respectively. These results suggest that while users moderately enjoyed interacting with the system, they perceived limited innovation and creativity in its design. The relatively narrow confidence intervals across all dimensions indicate a high degree of consistency in user responses, enhancing the reliability of the data. The findings highlight the system's strengths in critical dimensions such as Efficiency, Perspicuity, and Dependability, which are essential for functional usability. However, the lower scores for Stimulation and Novelty suggest areas for improvement, particularly in enhancing user engagement and incorporating innovative features to make the system more dynamic and appealing. Details of the confidence intervals for RS Jogja are presented in Table 5.

These results provide a comprehensive understanding of the system's performance and offer a foundation for targeted interventions to optimize the overall user experience.

Table 5. The confidence intervals of RS Jogja

Confidence intervals (p=0.05) per scale						
Scale	Mean	Std. Dev.	N	Confidence	Confidence interval	
Attractiveness	1,291	0,922	59	0,235	1,056	1,526
Perspiciuity	1,496	0,875	59	0,223	1,272	1,719
Efficiency	1,619	1,015	59	0,259	1,360	1,878
Dependability	1,479	0,959	59	0,245	1,234	1,723
Stimulation	1,106	1,088	59	0,278	0,828	1,384
Novelty	0,729	0,989	59	0,252	0,476	0,981

3.3. Answers Distribution Based on UEQ Results RS Sardjito

The RS Sardjito User Experience Questionnaire (UEQ) results highlight user perceptions across six dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. Positive responses dominate in dimensions such as Attractiveness (e.g., "annoying/enjoyable" and "unattractive/attractive") and Perspicuity (e.g., "not understandable/understandable" and "difficult to learn/easy to learn"), indicating satisfaction with the system's visual appeal and ease of use. Similarly, Efficiency (e.g., "inefficient/efficient" and "cluttered/organized") and Dependability (e.g., "unpredictable/predictable" and "not secure/secure") received high positive scores, reflecting perceptions of reliability and task effectiveness. While Stimulation (e.g., "boring/exciting" and "demotivating/motivating") suggests moderate user engagement, Novelty (e.g., "dull/creative" and "conservative/innovative") exhibits a more varied response distribution, indicating limited innovation in design. These findings emphasize the system's strengths in usability and reliability while identifying Novelty as an area for potential improvement to enhance creativity and innovation in user experience. Details of the answer distribution are listed in Table 6 below.

Table 6. Answer distribution result for RS Sardjito

Nr	Item	1	2	3	4	5	6	7	Scale
1	annoying/enjoyable	0	1	0	0	9	15	10	Attractiveness
2	not understandable/understandable	0	0	0	1	9	20	5	Perspiciuity
3	dull/creative	1	3	5	1	3	15	7	Novelty
4	difficult to learn/easy to learn	0	2	6	2	6	15	4	Perspiciuity
5	inferior/valuable	2	2	1	1	0	12	17	Stimulation
6	boring/exciting	0	0	1	6	12	12	4	Stimulation
7	not interesting/interesting	0	0	1	2	9	17	6	Stimulation
8	unpredictable/predictable	1	0	1	9	9	11	4	Dependability
9	slow/fast	0	4	5	3	2	15	6	Efficiency
10	conventional/inventive	2	3	7	4	7	10	2	Novelty
11	obstructive/supportive	0	0	1	1	8	14	11	Dependability
12	bad/good	0	0	6	0	4	20	5	Attractiveness
13	complicated/easy	0	1	1	5	13	13	2	Perspiciuity
14	unlikable/pleasing	0	0	0	3	14	13	5	Attractiveness
15	usual/leading edge	2	0	2	3	11	14	3	Novelty
16	unpleasant/pleasant	0	0	0	2	9	18	6	Attractiveness
17	not secure/secure	0	2	3	2	6	16	6	Dependability

18	demotivating/motivating	0	0	3	4	9	14	5	Stimulation
19	does not meet expectations/meets expectations	0	2	2	4	9	16	2	Dependability
20	inefficient/efficient	0	0	1	2	8	21	3	Efficiency
21	confusing/clear	0	4	2	1	4	17	7	Perspiciuity
22	impractical/practical	0	1	1	5	7	18	3	Efficiency
23	cluttered/organized	0	0	3	3	6	16	7	Efficiency
24	unattractive/attractive	0	0	3	4	8	17	3	Attractiveness
25	unfriendly/friendly	0	2	1	5	5	18	4	Attractiveness
26	conservative/innovative	0	2	0	8	5	17	3	Novelty

RS Jogja

The RS Sardjito UEQ results provide a detailed analysis of user perceptions across six key dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. The Attractiveness dimension, assessed through items like "annoying/enjoyable" and "unattractive/attractive," demonstrates strong positive ratings concentrated in categories 5–7, indicating users find the system visually appealing and pleasant to use. Similarly, Perspicuity, which evaluates ease of understanding and learning, shows high scores for items such as "complicated/easy" and "not understandable/understandable," suggesting the system is intuitive and user-friendly. The Efficiency dimension, measured through items like "slow/fast" and "inefficient/efficient," reveals that users perceive the system as effective and organized, with responses predominantly in higher categories. Dependability, which examines reliability and security, also scored well, with items such as "unpredictable/predictable" and "not secure/secure" reflecting confidence in the system's reliability. Stimulation, which measures user engagement and motivation, shows generally positive results for items like "boring/exciting" and "demotivating/motivating," although some responses in lower categories suggest potential for enhancing user engagement further. The Novelty dimension, which evaluates the system's creativity and innovation, exhibits a more varied distribution of responses. Items like "dull/creative" and "conservative/innovative" are widely spread across categories, indicating that while some users perceive the system as innovative, others find it less original or stimulating. This suggests an opportunity to improve the system's ability to surprise and inspire users. Overall, the results highlight the system's strengths in Attractiveness, Perspicuity, Efficiency, and Dependability, reflecting high levels of usability, reliability, and effectiveness. However, Novelty emerges as a dimension requiring attention to enhance the system's creative and innovative appeal, which could further improve user satisfaction and engagement. Details of the answer distribution are listed in Table 7 below.

Table 7. Answer distribution result for RS Jogja

Nr	Item	1	2	3	4	5	6	7	Scale
1	annoying/enjoyable	0	2	3	13	20	17	4	Attractiveness
2	not understandable/understandable	0	1	1	3	19	18	17	Perspiciuity
3	dull/creative	1	2	8	13	14	15	6	Novelty
4	difficult to learn/easy to learn	2	4	4	5	13	26	5	Perspiciuity
5	inferior/valuable	3	4	3	0	9	15	25	Stimulation
6	boring/exciting	2	1	7	16	20	10	3	Stimulation
7	not interesting/interesting	1	2	4	16	17	13	6	Stimulation
8	unpredictable/predictable	2	0	6	10	22	14	5	Dependability
9	slow/fast	0	4	3	7	12	23	10	Efficiency
10	conventional/inventive	0	5	15	23	9	4	3	Novelty
11	obstructive/supportive	0	0	4	1	9	18	27	Dependability
12	bad/good	0	1	3	1	15	26	13	Attractiveness

13	complicated/easy	0	0	3	3	24	25	4	Perspiciuity
14	unlikable/pleasing	3	2	1	8	29	14	2	Attractiveness
15	usual/leading edge	1	5	2	8	23	16	4	Novelty
16	unpleasant/pleasant	0	4	2	6	27	15	5	Attractiveness
17	not secure/secure	0	1	3	4	15	20	16	Dependability
18	demotivating/motivating	0	0	3	9	18	19	10	Stimulation
19	does not meet expectations/meets expectations	0	0	2	11	20	20	6	Dependability
20	inefficient/efficient	0	2	2	2	16	24	13	Efficiency
21	confusing/clear	0	2	2	3	14	17	21	Perspiciuity
22	impractical/practical	0	1	3	6	12	21	16	Efficiency
23	cluttered/organized	0	1	3	4	12	13	26	Efficiency
24	unattractive/attractive	0	2	3	6	18	17	13	Attractiveness
25	unfriendly/friendly	0	0	3	5	13	22	16	Attractiveness
26	conservative/innovative	0	3	3	6	23	14	10	Novelty

3.4. Benchmark Result Based on UEQ

RS Sardjito

The RS Sardjito UEQ results provide a comprehensive evaluation of user experience across six core dimensions: Attractiveness, Perspiciuity, Efficiency, Dependability, Stimulation, and Novelty, with benchmark data indicating diverse levels of performance. The mean scores across these dimensions generally fall within the positive range, spanning from Above Average to Good, with notable variations in specific categories. Attractiveness, which captures the overall visual appeal and user satisfaction (e.g., "annoying/enjoyable" and "unattractive/attractive"), exhibits high scores, predominantly within the "Good" and "Excellent" categories. This suggests users perceive the system as aesthetically pleasing and enjoyable to interact with. Similarly, Perspiciuity, measuring ease of understanding and learning (e.g., "complicated/easy" and "not understandable/understandable"), also demonstrates strong performance, reinforcing the system's intuitive design and accessibility. Efficiency, which evaluates the system's ability to support fast and effective task completion (e.g., "slow/fast" and "inefficient/efficient"), scores positively, with most responses clustering in the "Above Average" and "Good" ranges. This indicates that users find the system effective in facilitating their workflow. However, Dependability, which assesses reliability and predictability (e.g., "unpredictable/predictable" and "not secure/secure"), shows slightly lower mean scores, with a value of 0.78 closer to the "Above Average" benchmark. While the system is perceived as dependable, there is room for improvement in instilling greater confidence in its reliability and security. Stimulation, which reflects user engagement and emotional appeal (e.g., "boring/exciting" and "demotivating/motivating"), performs well, indicating that the system is capable of maintaining user interest and motivation during interactions. In contrast, Novelty, which measures creativity and innovation (e.g., "dull/creative" and "conservative/innovative"), scores the lowest among the six dimensions, with mean values leaning toward "Below Average." This suggests that users perceive the system as lacking in originality and innovative features, highlighting a critical area for improvement. In summary, the RS Sardjito system demonstrates strengths in Attractiveness, Perspiciuity, Efficiency, and Stimulation, indicating high usability and user satisfaction. However, the results identify dependability and novelty as dimensions that require attention. Enhancing the system's reliability and introducing more innovative and creative elements could significantly improve overall user experience and engagement, aligning the system more closely with user expectations and modern benchmarks. Details of the UEQ Benchmark for RS Sardjito are presented in Figure 4.

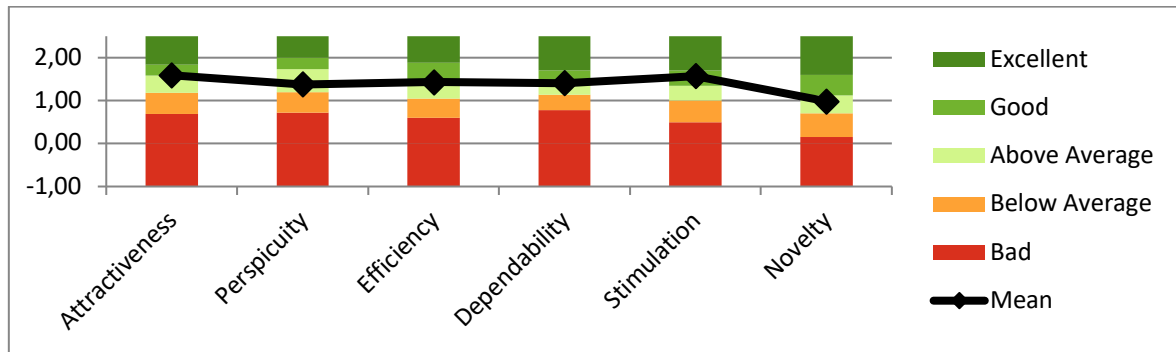


Figure 4. UEQ Benchmark Chart RS Sardjito

RS Jogja

The RS Sardjito UEQ benchmark chart provides a detailed analysis of user experience across six dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. The chart illustrates the mean scores for each dimension, ranging from -1 (negative experience) to 2.5 (positive experience), and categorizes them into levels such as Bad, Below Average, Above Average, Good, and Excellent. Attractiveness, which assesses the overall appeal and user satisfaction with the system, achieves a mean score of approximately 1.5, placing it comfortably in the Good category. This indicates that users find the system visually appealing and enjoyable. Perspicuity, measuring ease of understanding and usability, also scores around 1.5, reflecting the system's intuitive design and accessibility, making it easy for users to learn and operate. Efficiency, which evaluates the system's ability to support effective and fast task completion, scores the highest among all dimensions, slightly above 1.5, indicating that users perceive the system as highly functional and supportive of their workflow. Dependability, which assesses reliability and security, has a slightly lower mean score, around 1.0, placing it in the above-average category. This suggests that while users generally trust the system, there is room for improvement in enhancing its predictability and security features. Stimulation, which evaluates the system's ability to engage and motivate users, scores slightly above 1.0, reflecting positive emotional appeal and user engagement. However, Novelty, which measures creativity and innovation, scores the lowest among the six dimensions, with a mean value closer to 0.5, placing it in the below-average category. This indicates that users perceive the system as lacking in originality and innovative features. Overall, the RS Sardjito system demonstrates strong performance in Attractiveness, Perspicuity, Efficiency, and Stimulation, highlighting its usability and appeal. However, the relatively lower scores in Dependability and Novelty suggest areas for improvement, particularly in enhancing reliability and introducing more innovative features to increase user engagement and satisfaction. Details of the UEQ Benchmark for RS Jogja are presented in Figure 5.

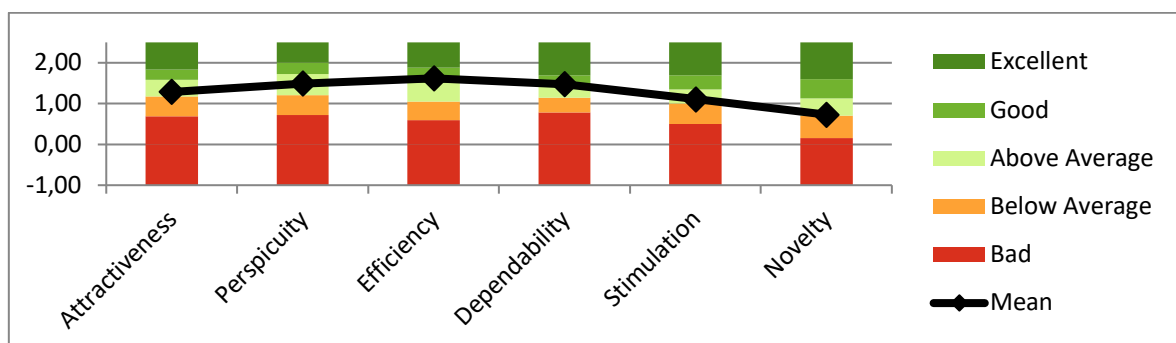


Figure 5. UEQ Benchmark Chart RS Jogja

3.5. Strengths of The RS Sardjito and RS Jogja Website

The table below provides a comparative analysis of the strengths of the websites for RS Sardjito and RS Jogja based on their benchmark results across six user experience dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. These dimensions

reflect the overall usability, reliability, and emotional appeal of the websites, offering insights into their performance and areas of excellence. While both websites share strengths in key areas such as Attractiveness and Perspicuity, they also exhibit unique advantages in specific dimensions, highlighting their distinct qualities. Table 8 serves as a concise summary to identify the strong points of each website and provide guidance for further improvement.

Table 8. Strengths of The RS Sardjito and RS Jogja Website

Dimension	RS Sardjito Strength	RS Jogja Strength	Explanation
Attractiveness	Good to Excellent	Good to Excellent	Both websites are visually appealing and provide a satisfying user experience.
Perspicuity	Good to Excellent	Good to Excellent	Both systems are easy to understand and intuitive for users to learn and use.
Efficiency	Excellent	Good to Excellent	RS Sardjito excels in task completion speed and effectiveness, slightly higher than RS Jogja.
Dependability	Above Average	Good	RS Jogja performs better in terms of reliability and security, while RS Sardjito performs slightly lower.
Stimulation	Good	Good to Excellent	Both websites engage and motivate users, with RS Jogja showing slightly higher engagement.
Novelty	Below Average	Above Average	RS Jogja is perceived as more creative and innovative, while RS Sardjito lacks originality.

3.6. Areas for Improvement of RS Sardjito and RS Jogja Website

The table below highlights the areas for improvement for the websites of RS Sardjito and RS Jogja based on their benchmark results across six user experience dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. While both websites demonstrate strong performance in several dimensions, there are specific aspects that require attention to further enhance user satisfaction and functionality. These improvement areas range from refining visual elements and usability to strengthening reliability and fostering creativity. Table 9 serves as a guide for identifying actionable steps that each website can take to address weaknesses, optimize user experience, and maintain a competitive edge.

Table 9. Area for Improvement of RS Sardjito and RS Jogja Website

Dimension	RS Sardjito Improvement Area	RS Jogja Improvement Area	Explanation
Attractiveness	Minor refinements to enhance visual appeal.	Maintain the current design and ensure consistency.	RS Sardjito could further refine its design elements, while RS Jogja should focus on sustaining its visual appeal.
Perspicuity	Simplify navigation for even greater usability.	Ensure accessibility for all user groups.	RS Sardjito could improve navigation fluidity, while RS Jogja can enhance accessibility features for diverse users.
Efficiency	Improve task processing speed further.	Enhance task completion speed and responsiveness.	RS Sardjito performs well but could aim for perfection, while RS Jogja needs to match RS Sardjito's efficiency.
Dependability	Strengthen security and reliability features.	Minor adjustments to ensure consistent reliability.	RS Sardjito should focus on boosting trustworthiness, while RS Jogja can fine-tune its already solid dependability.
Stimulation	Introduce more engaging elements.	Maintain engagement while exploring innovative ways to motivate users.	RS Sardjito could add interactive features, while RS Jogja should innovate to maintain high stimulation levels.
Novelty	Focus on introducing creative and unique features.	Continue innovating to remain ahead of user expectations.	RS Sardjito needs significant improvement in creativity, while RS Jogja should sustain and expand its innovative edge.

3.7. Key Findings and Comparative Insights

A. Key Findings:

- **Shared Strengths:**
Both RS Sardjito and RS Jogja demonstrate commendable performance in the dimensions of Attractiveness, Perspicuity, and Stimulation, reflecting a strong commitment to delivering a positive user experience. The websites are visually appealing, intuitive to navigate, and engaging, which are critical factors in maintaining user satisfaction and retention.
- **Distinct Strengths:**
RS Sardjito excels in Efficiency, indicating its superior ability to facilitate swift and effective task completion for users. Conversely, RS Jogja outperforms RS Sardjito in dependability, showcasing higher reliability and trustworthiness, as well as novelty, which demonstrates a greater degree of creativity and innovation.
- **Areas for Improvement:**
RS Sardjito exhibits a significant need for improvement in Novelty, as users perceive it as lacking originality and innovative features. Additionally, enhancements in dependability are required to strengthen user trust. RS Jogja, while strong in most dimensions, could focus on improving Efficiency to match the performance of RS Sardjito. Both websites have opportunities to refine their stimulation features further to maximize user engagement.

B. Comparative Insights:

- **Design and Visual Appeal:**
The dimension of Attractiveness is a shared strength for both websites, indicating that their visual design aligns well with user expectations. RS Sardjito could benefit from minor refinements to enhance its aesthetic appeal further, while RS Jogja should focus on maintaining consistency and sustaining its current level of performance.
- **Usability and Learnability:**
Both websites perform strongly in Perspicuity, demonstrating a user-friendly interface that facilitates ease of navigation and learning. This indicates that both platforms prioritize accessibility and usability in their design.
- **Performance and Functional Efficiency:**
RS Sardjito leads in Efficiency, making it the preferred choice for users seeking quick and effective task completion. RS Jogja, while performing well in this dimension, has room for improvement to achieve parity with RS Sardjito.
- **Reliability and Security:**
RS Jogja demonstrates higher scores in Dependability, reflecting greater reliability and security features. RS Sardjito, on the other hand, needs to address this gap by implementing measures to enhance its system's trustworthiness and predictability.
- **Creativity and Innovation:**
RS Jogja significantly outperforms RS Sardjito in Novelty, highlighting its innovative approach to design and features. RS Sardjito should prioritize this dimension to foster creativity and differentiate itself from competitors.
- **User Engagement and Motivation:**
Both websites perform well in Stimulation, but RS Jogja exhibits slightly higher engagement levels, suggesting a stronger emotional connection with users. RS Sardjito could benefit from introducing interactive features and dynamic content to enhance user motivation and engagement.

C. Best Practice for Improving Healthcare Website

Based on the key findings and comparative insights from the reliability analysis of the RS Sardjito and RS Jogja websites, healthcare websites can adopt several best practices to improve user experience. Firstly, focusing on visual appeal and aesthetics is essential, as both websites demonstrated strong reliability in the Attractiveness dimension. This suggests that users value well-designed, visually engaging interfaces. Secondly, enhancing efficiency and dependability should be prioritized, as RS Jogja

outperformed RS Sardjito in these dimensions, indicating the importance of creating websites that support seamless task completion and establish trustworthiness. Features such as intuitive navigation, clear information architecture, and secure systems can significantly contribute to these aspects. Thirdly, improving clarity and ease of use is critical, as the Perspicuity scores for both websites, while reliable, indicate room for refinement. This can be achieved through simplified language, user-friendly layouts, and accessible design elements. Finally, innovation and uniqueness, as reflected in the Novelty dimension, require attention, particularly for RS Sardjito, where reliability was weaker. Incorporating interactive features, personalized experiences, and modern design trends can enhance users' perception of innovation. By implementing these practices, healthcare websites can provide a more engaging, efficient, and trustworthy user experience, ultimately improving satisfaction and usability for their target audiences. Details of the key for improving are stated in Table 10 below:

Table 10. Key For Improving Healthcare Website

Dimension	Key Findings	Best Practices for Improvement
Attractiveness	Both websites scored high reliability (0.86), indicating strong visual appeal.	- Focus on clean, modern, and visually engaging designs. - Use consistent color schemes, typography, and layouts.
Efficiency	RS Jogja scored higher (0.81) than RS Sardjito (0.71), reflecting better task support.	- Ensure intuitive navigation and streamlined workflows. - Optimize page load times and reduce unnecessary steps.
Dependability	RS Jogja outperformed RS Sardjito (0.84 vs. 0.64), showing stronger trustworthiness.	- Enhance website security and privacy features. - Provide accurate, up-to-date, and reliable information.
Perspicuity	Moderate scores for both websites (0.73 for RS Sardjito, 0.69 for RS Jogja).	- Simplify language and content. - Use clear labels, instructions, and accessible design elements.
Stimulation	Both websites performed well (0.75 for RS Sardjito, 0.79 for RS Jogja).	- Include engaging features such as interactive elements or multimedia. - Maintain a dynamic and motivating layout.
Novelty	RS Jogja scored higher (0.74) than RS Sardjito (0.51), indicating better innovation.	- Incorporate unique and modern design trends. - Add personalized features and innovative tools for user interaction.

4. CONCLUSION

This study provides a detailed evaluation of the user experience of the RS Sardjito and RS Jogja websites across six critical dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. The findings reveal that both websites exhibit strong performance in Attractiveness and Perspicuity, reflecting a commitment to delivering visually appealing and user-friendly platforms. RS Sardjito demonstrates notable strength in Efficiency, enabling users to complete tasks effectively and quickly, while RS Jogja excels in Dependability and Novelty, showcasing higher levels of reliability and innovation. Despite these strengths, areas for improvement remain evident, particularly in Novelty and Dependability for RS Sardjito and in Efficiency for RS Jogja. Both websites also have opportunities to enhance Stimulation by incorporating more engaging and interactive features to foster deeper user engagement.

The findings of this research offer valuable insights that can inform policy development in healthcare website design and functionality. Policies should prioritize user-centered design principles to ensure accessibility, usability, and visual appeal, while also emphasizing the importance of functional efficiency to facilitate seamless task completion. Additionally, strengthening reliability through robust security measures and fostering innovation by encouraging creative design elements are essential for building trust and differentiation in healthcare platforms. Regular benchmarking and user feedback should be institutionalized to ensure continuous improvement, enabling healthcare websites to adapt to evolving user needs and technological advancements. By addressing these dimensions systematically, healthcare organizations can create

websites that not only enhance user satisfaction but also serve as effective tools for improving access to healthcare services, fostering patient engagement, and advancing the overall quality of digital healthcare delivery.

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