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The Effect of Knowledge and Patient Satisfaction on Interest in Online Reservations in the Outpatient Unit of Jember Clinic Hospital

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Abstract:
Patient knowledge and satisfaction are important factors influencing interest in using healthcare services, including online reservation systems. Optimal use of information technology and appropriate patient education can improve the hospital service experience. This study aims to determine the influence of patient knowledge and satisfaction on their interest in using the online reservation system at the Outpatient Unit of Jember Clinic Hospital. This study used an analytical approach with a descriptive cross-sectional design. A sample of 100 respondents was determined using the purposive sampling technique based on the Slovin formula. Data analysis was performed using multiple linear regression using SPSS for Windows software. The analysis showed that patient knowledge positively and significantly affected interest in using online reservations (t-count 5.623). Patient satisfaction also positively and significantly influences this interest (t-count 3.273). Patient knowledge and satisfaction have been shown to drive interest in using online reservation systems significantly. Therefore, it is recommended that hospitals develop educational programs and improve the quality of online reservation services to increase patient interest.

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INTRODUCTION

In today's digital era, developments in information technology have significantly impacted various aspects of life, including the healthcare sector (Chandra et al., 2022). The application of information technology reflects an institution's progress and indicates its readiness to respond to increasingly complex societal needs (Angelaki et al., 2024). As public service institutions, hospitals must adapt to technological dynamics to improve patient care efficiency, effectiveness, and quality. One form of information technology utilization that is now being implemented in many healthcare facilities is the online reservation system (Khalil et al., 2022).

The online reservation program is designed to give patients easier access to healthcare services, particularly during outpatient registration (Tanbeer et al., 2021). This system allows patients to select their preferred visit time, service type, and doctor without visiting the hospital in person. Hospitals are expected to reduce queues, speed up service times, and improve patient comfort through this innovation. Using online reservation systems is a crucial strategy for increasing the efficiency of medical services while strengthening hospital competitiveness amidst increasingly fierce healthcare competition (Sari et al., 2025).

However, field data shows that patient interest in online reservation services remains relatively low. This system, in theory, offers various advantages over conventional registration methods (Fan et al., 2023). One factor suspected of contributing to this low interest is patients' knowledge of

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information technology, which varies among individuals. Limited technological knowledge is a significant obstacle to adapting digital reservation systems, particularly for elderly patients and those living in areas with limited internet access (Bertolazzi et al., 2024).

This situation is further exacerbated by hospitals' lack of public awareness and education regarding the procedures and benefits of using the online reservation system (Alhumaid et al., 2021). Many patients only learn about the program through passive media such as brochures or banners, thus lacking a thorough understanding of its use (Suwandari & Wardani, 2021). It is also not uncommon to find patients feeling confused or experiencing technical difficulties when accessing the online reservation system, ultimately diminishing their interest in using it again.

This patient dissatisfaction has profound implications for outpatient visits. According to 2024 ITRS data, the average attendance rate for visits made through the online reservation system only reached 72.7%, still below the annual target of 80%. Although there is a visible month-over-month upward trend, this figure indicates that some patients still prefer to register in person. This low attendance indicates technical, psychological, and cultural barriers to attracting patients.

From a theoretical perspective, patient knowledge and satisfaction are crucial factors in decision-making, including choosing a healthcare access method (Xu et al., 2021). Adequate knowledge can shape positive attitudes and perceptions toward a system, while satisfaction shapes loyalty and repeat usage intentions. Several previous studies have also underscored the importance of these two variables. Patient satisfaction contributes to patient loyalty. Liu et al. (2021) added that trust and satisfaction directly relate to patients' decisions to re-select the same service. However, there is still little research specifically examining the influence of knowledge and satisfaction on the intention to use online reservation systems in healthcare facilities.

In the context of the Jember Clinic Hospital, this phenomenon is a serious concern because it not only affects the number of patient visits but also the overall image and reputation of the hospital. By the mandate of the Minister of Health Regulation No. 51 of 2019, Article 14, paragraph (1), letter d, hospitals are required to provide online reservation services as part of efforts to facilitate access to services for patients. In addition, BPJS Kesehatan Regulation No. 4 of 2020 concerning Health Information Systems emphasizes the importance of efficient and user-friendly information system integration.

Therefore, a comprehensive strategy is needed to increase patient interest in online reservation services. This strategy includes strengthening outreach and education for patients and evaluating the quality of services provided through the system. Continuous educational campaigns through various communication channels such as social media, educational seminars, and visual promotions are expected to increase patient awareness, knowledge, and interest in online reservation systems. Hospitals also need to pay attention to satisfaction at every stage of digital service delivery to ensure a positive experience that can foster patient loyalty.

METHOD

This research is quantitative research with an analytical and cross-sectional design approach. This approach was used to determine the influence of patient knowledge and satisfaction on their interest in using the online reservation system at the Outpatient Unit of Jember Clinic Hospital at a specific time. This design allows researchers to measure the variables simultaneously, allowing for simultaneous and partial analysis of the relationship between the independent and dependent variables.

The population in this study was all patients who visited through the online reservation system during 2024, totaling 160,743 people. The sampling technique used was purposive sampling, with

the inclusion criteria being patients who have used the online reservation service and are willing to be respondents. The sample size was determined using the Slovin formula with a 10% error rate, resulting in a sample size of 100 respondents. Data was collected through a closed-ended questionnaire compiled based on theoretical indicators and adaptations of previous research instruments. The three primary constructs in this study, namely patient knowledge, patient satisfaction, and interest in online reservations, were each measured using six Likert-based question items.

This study received ethical approval from Strada University of Indonesia, ensuring that all research procedures adhered to the highest standards of ethical conduct. The approval confirms that the study was carried out in accordance with relevant ethical guidelines and regulations, including the protection of participants' rights, informed consent, confidentiality, and the minimization of any potential harm. The ethical review process thoroughly evaluated the research design, methodology, and participant involvement to guarantee the integrity and ethical soundness of the study.

The research instruments were tested for validity and reliability before use. Validity was tested using the Pearson Product-Moment correlation, while reliability was tested using the Cronbach's Alpha coefficient, where all variables showed values above 0.60, indicating the instrument's reliability. Data analysis was conducted quantitatively using SPSS for Windows. The analysis process began with classical assumption tests (normality, multicollinearity, and heteroscedasticity), followed by multiple linear regression tests to determine the simultaneous and partial effects of knowledge and satisfaction on interest in using online reservations. The analysis results were considered significant if the value $p < 0.05$.

RESULT

This study involved 100 respondents who were patients using the online reservation service at the Outpatient Unit of Perkebunan Jember Clinic Hospital. The results are presented in a table below.

Table 1. Respondent Characteristics

Variables	Category	Frequency	Percentage
Gender	Man	66	66
	Woman	34	34
Age	< 30 years	17	17
	30 – 45 years	30	30
	46 – 60 years	25	25
	>60 years	28	28
Education	First Middle School	1	1
	Senior High School	25	25
	Diploma	17	17
	Masters	50	50
	Master	7	7
Work	Students	7	7
	Housewife	10	10
	Employee	18	18
	State Civil Apparatus	20	20
	Teacher	8	8
	Lecturer	9	9
	Retired	28	28

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Table 1 shows that most research respondents were male, namely 66 percent. In the distribution of respondents by age, there are relatively balanced percentages among different age groups: 17% of respondents are aged under 30 years, 30% are aged 30-45 years, 25% are aged 46-60 years, and 28% are aged over 60 years. The general description of respondents is based on education level, where 50% have a bachelor's degree. Regarding the respondents' type of work, the most significant proportion is retired, with 28%.

Table 2. Respondents' Knowledge (X1) based on Questionnaire

Item	Respondent Answer Score										Mean
	1		2		3		4		5		
	f	%	f	%	f	%	f	%	f	%	
X1.1	4	4.00	11	11.00	26	26.00	38	38.00	21	21.00	3.61
X1.2	2	2.00	18	18.00	23	23.00	45	45.00	12	12.00	3.47
X1.3	5	5.00	11	11.00	20	20.00	46	46.00	18	18.00	3.61
X1.4	3	3.00	16	16.00	25	25.00	32	32.00	24	24.00	3.58
X1.5	4	4.00	17	17.00	27	27.00	30	30.00	22	22.00	3.49
X1.6	5	5.00	10	10.00	25	25.00	41	41.00	19	19.00	3.59
X1	4	3.83	14	13.83	24	24.33	39	38.67	19	19.33	3.56

The majority of respondents' answers for each item on the patient knowledge variable (X1) showed a score of 4, namely: use of online reservation platforms to make appointments with health care providers (X1.1) by 38.00%, sufficient understanding of how to use online reservation systems to access health care services (X1.2) by 45.00%, the importance of understanding the online reservation process in accessing health care services effectively (X1.3) by 46.00%, views on the use of online reservations influence my overall experience in getting health care services (X1.4) by 32.00%, having confidence in using online reservation systems to make appointments with health care providers (X1.5) by 30.00% and having sufficient knowledge of the features available in online reservation systems for health care services (X1.6) by 41.00%.

The average score for the patient knowledge variable (X1) was 3.56, which is in the good category. This indicates that patient knowledge about online reservations in the outpatient room of Perkebunan Jember Clinic Hospital is in the good category.

Table 3. Respondent Satisfaction (X2) based on Questionnaire

Item	Respondent Answer Score										Mean
	1		2		3		4		5		
	f	%	f	%	f	%	f	%	f	%	
X2.1	5	5.00	13	13.00	27	27.00	29	29.00	26	26.00	3.58
X2.2	4	4.00	17	17.00	28	28.00	31	31.00	20	20.00	3.46
X2.3	5	5.00	19	19.00	20	20.00	34	34.00	22	22.00	3.49
X2.4	4	4.00	13	13.00	32	32.00	35	35.00	16	16.00	3.46
X2.5	9	9.00	5	5.00	30	30.00	32	32.00	24	24.00	3.57
X2.6	6	6.00	15	15.00	20	20.00	36	36.00	23	23.00	3.55
X2	6	5.50	14	13.67	26	26.17	33	32.83	22	21.83	3.52

Patient satisfaction variable (X2) shows that the majority of respondents' answers for each item are at a score of 4, namely: feeling satisfied with the ease of access provided by the online reservation system in obtaining health services (X2.1) at 29.00%, the quality of service received after making an online reservation is good (X2.2) at 31.00%, feeling satisfied with the service process experienced when using the online reservation system (X2.3) at 34.00%, the service system used

in online reservations is satisfactory (X2.4) at 35.00%, there is a suitability of the service I received with my expectations after using the online reservation system (X2.5) at 32.00% and the service cost is suitable with the quality of service I received through online reservations (X2.6) at 36.00%. The average score of the patient satisfaction variable (X2) is 3.52, which is included in the good category. This indicates that patient satisfaction regarding online reservations in the outpatient room of the Perkebunan Jember Clinic Hospital is in the good category.

Table 4. Respondents' Interest in Online Reservations (Y)

Item	Respondent Answer Score										Mean
	1		2		3		4		5		
	f	%	f	%	f	%	f	%	f	%	
Y.1	8	8.00	16	16.00	18	18.00	40	40.00	18	18.00	3.44
Y.2	7	7.00	8	8.00	29	29.00	39	39.00	17	17.00	3.51
Y.3	2	2.00	16	16.00	21	21.00	41	41.00	20	20.00	3.61
Y.4	5	5.00	12	12.00	18	18.00	40	40.00	25	25.00	3.68
Y.5	4	4.00	18	18.00	19	19.00	44	44.00	15	15.00	3.48
Y.6	1	1.00	9	9.00	27	27.00	44	44.00	19	19.00	3.71
Y	5	4.50	13	13.17	22	22.00	41	41.33	19	19.00	3.57

Most of the respondents' answers for each item on the interest variable in online reservation (Y) showed a score of 4, namely: the feeling that the use of online reservation can meet needs (Y.1) by 40.00%, the use of online reservation due to interest in what the surrounding environment does (Y.2) by 39.00%, the online reservation process received can provide stronger happiness (Y.3) by 41.00%, the online reservation system can broaden insight about health services (Y.4) by 40.00%, getting the ease of using technology to make online reservations (Y.5) by 44.00% and active socialization regarding the online reservation system needs to be carried out by health service providers (Y.6) by 44.00%. The average value of the interest variable score in online reservations (Y) is 3.57, which is included in the good category. This indicates that interest in online reservations in the outpatient room of the Perkebunan Jember Clinic Hospital is in the good category.

Table 5. Multiple Linear Regression Test

No.	Independent Variables	Regression coefficient	Hypothesis testing	
			t-count	p-value
1.	Patient knowledge (X1)	0.418	5.623	0.000
2.	Patient satisfaction (X2)	0.240	3.273	0.001
Constant			7.450	
Adjusted R^2			0.295	
F-count			21.722	
Significance			0.000	

The multiple linear regression analysis resulted in the following regression equation (Y = 7.450 + 0.418 X1 + 0.240 X2). The meaning of the regression equation is the influence of each independent variable (patient knowledge and satisfaction) on the dependent variable (interest in online reservations), namely:

1. The constant of the regression equation (b0) has a positive value of 7.450, meaning that if the value of the independent variables or free variables is equal to zero, then the interest in online reservations is 7.450.
2. The regression coefficient of the patient knowledge variable (b1) has a positive value of 0.418, meaning that if there is an increase in the patient's knowledge value by one unit, it will increase

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the value of online reservation interest by 0.418, assuming that other independent variables are constant.

3. The regression coefficient of the patient satisfaction variable (b2) has a positive value of 0.240, meaning that if there is an increase in the patient satisfaction value by one unit, it will increase the value of interest in online reservations by 0.240, assuming that other independent variables are constant.

The multiple linear regression analysis results show that patient knowledge positively and significantly affects the interest in using online reservations, with a t-value of 5.623 and a p-value <0.001. This indicates that the higher the patient's knowledge, the more likely they are to be interested in using online reservation services. Similarly, patient satisfaction positively and significantly affects the interest in online reservations, with a t-value of 3.273 and a p-value = 0.001. Both independent variables simultaneously contribute to increasing patient interest in using the online reservation system, as indicated by a significant regression model at the 95% confidence level.

DISCUSSION

The study results show that patient knowledge positively and significantly influences interest in using the online reservation system in the Outpatient Unit of Jember Hospital Clinic. This finding is reflected in the value-count of 5.623 with a significance value of <0.001, indicating a strong correlation between patient knowledge and their interest in utilizing this healthcare technology. This reflects that patients who understand the benefits, how it works, and the procedures for using online reservations are more likely to be interested and willing to actively use the system (Ferierra et al., 2023).

This finding is in line with the theory of behavioral intention proposed by Ajzen in the Theory of Planned Behavior (TPB), a person's intention or interest in acting is strongly influenced by their perceptions, attitudes, and knowledge (Hamid, S., & Bano, N., 2022). In this context, knowledge is the foundation for shaping patient confidence in the ease and usefulness of online reservation systems, ultimately driving their interest in using them.

One of the main obstacles to implementing digital technology in the healthcare sector is low technological literacy among the public, especially among the elderly and groups with limited access to digital information (Kemp et al., 2021). Suwandari and Wardani (2021) also confirmed that some patients only learned about this service from banners or brochures without thoroughly understanding the user interface. This lack of understanding directly impacts patients' disinterest in switching from conventional registration methods to online reservation systems.

Based on these conditions, researchers believe a structured and ongoing education program is necessary to improve patient understanding of the online reservation system (Kasuk et al., 2025). Education can be delivered through interactive visual approaches, hands-on application usage training, and onsite assistance. This educational strategy is crucial given the ongoing gap between available technological innovations and the adaptive capacity of most patients (Bruno et al., 2022).

Furthermore, the results of this study also show that patient satisfaction has a positive and significant effect on interest in online reservations, with t-count amounting to 3,273 and p-value = 0.001. This indicates that patients' positive perceptions of online service quality contribute to increased interest in using the system. This finding reinforces the concept put forward by Kotler and Keller that satisfaction is the key to creating customer loyalty and increasing participation in the services offered.

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This fact is also reflected in the 2024 Google Review data, which showed a drop in the rating to 4.3 in April–June due to numerous complaints about the online reservation system. This drop in rating is directly proportional to the increase in patient complaints expressing dissatisfaction with the flow and quality of digital services. Although the overall average Google Review rating was 4.4, this figure is still below the hospital's target of 4.5. This emphasizes that the quality of the online reservation system, both technically and in terms of service, remains a key factor in the patient experience.

Patient satisfaction is a multidimensional construct influenced by various service aspects, such as system reliability, staff responsiveness, information clarity, and ease of access (Widyowati et al., 2023). Several previous studies have identified that these aspects can significantly influence patient perceptions. Mustika et al. (2019) stated that patient satisfaction is related to four service dimensions: reliability, responsiveness, assurance, and empathy. Meanwhile, Gavinov and Anggriani (2023) added another dimension, tangibility, in measuring service quality against patient satisfaction.

Furthermore, Gavurova et al. (2021) found that the most dominant dimension of satisfaction influencing patient behavior was the quality of interactions with medical staff compared to non-medical staff. In online reservations, patients' perceptions of staff responsiveness in handling complaints, clarity of application instructions, and speed of service are also important factors in creating satisfaction (Nuangjamnong, 2024). If the system experiences technical issues such as errors, verification delays, or confusing instructions, this can lead to frustration among patients, ultimately reducing their interest in using the system again.

The results of this study also underscore the importance of periodic evaluation of the implementation of the online reservation system. Hospitals risk losing patient trust and loyalty without consistent system controls and updates. Therefore, researchers argue that hospitals need to implement a transparent and prompt complaint reporting and handling system to ensure that any complaints or obstacles experienced by patients can be followed up with satisfactory solutions.

Regarding regulations, Minister of Health Regulation No. 51 of 2019, Article 14, paragraph (1), letter d requires hospitals to provide online reservation services to improve patient access and comfort. Similarly, BPJS Kesehatan Regulation No. 4 of 2020 emphasizes the importance of digitalizing health information systems. Therefore, the successful implementation of online reservations is an innovative option and has become a formally regulated requirement. Researchers see that patient knowledge and satisfaction are two strategic variables that must be optimized so that this system runs sustainably and meets community expectations and national regulations.

Based on the findings and underlying theory, researchers argue that efforts to increase patient interest in online reservation systems cannot be achieved in isolation. A holistic approach is needed, integrating digital education, system quality improvement, and strengthening communication between hospitals and patients. In other words, strategies that focus solely on the technical aspects of the system without considering patient perceptions and experiences are likely to yield less than optimal results. Therefore, patient involvement in the evaluation process, for example, through satisfaction surveys and feedback forums, is crucial for creating an online reservation system that is not only efficient but also humanistic.

Finally, this study contributes to developing technology-based intervention models more adaptive to patient needs. The practical implication of these findings is the need for hospital management to make digital literacy and service satisfaction strategic performance indicators in the digital transformation of healthcare services. Further research is recommended to explore other factors such as trust in data security, ease of use of the application (usability), and the influence of demographic characteristics on patient digital behavior.

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CONCLUSION

Based on the research results and discussions, it can be concluded that patient knowledge and satisfaction positively and significantly influence interest in using the online reservation system in the Outpatient Unit of Perkebunan Jember Clinic Hospital. Good knowledge enables patients to fully understand the benefits and procedures for using online reservations, thereby increasing their confidence and readiness to utilize health technology. Meanwhile, satisfaction with service quality, system reliability, and user experience also contributes to positive perceptions that encourage interest in continued system use. These findings indicate that digital transformation in hospital services depends on the provision of technology and patient readiness as users. Therefore, hospitals need to improve patient education strategies and ensure the quality of online reservation systems through continuous evaluation and improvement. Efforts to increase interest in digital services must be carried out comprehensively through educational, technological, and service approaches oriented towards the patient experience. Thus, optimizing the online reservation system can contribute to service efficiency, patient satisfaction, and a positive image of the hospital institution in the digital era.

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