Analysis of patient satisfaction with online outpatient registration services at wangaya general hospital, Denpasar City

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Abstrak

Online patient registration systems have been introduced in many hospitals to improve efficiency and convenience. At Wangaya Regional General Hospital (RSUD Wangaya), the Online Registration System (APDOL) has been implemented since 2022, but patient satisfaction has not yet been evaluated. This study aimed to analyze patient satisfaction with APDOL in the outpatient registration unit. A descriptive quantitative design with a cross-sectional approach was used. The population consisted of 811 APDOL users in November 2024, and a sample of 90 patients was selected through simple random sampling. Data were collected using patient satisfaction and APDOL quality questionnaires, then analyzed with univariate statistics. Results showed that 80% of respondents rated the system quality as good and 20% as sufficient. Regarding satisfaction, 70% of patients were satisfied, while 30% reported lower satisfaction. Reliability and accessibility were the most positively rated aspects, whereas timeliness required improvement. In conclusion, APDOL generally met patient expectations, but enhancements in responsiveness and user-friendliness are still needed to further improve satisfaction and service quality.

Keywords: Online Registration System, Patient Satisfaction, Outpatient Care, Health Services, Digital Healthcare

INTRODUCTION

Hospitals are healthcare institutions that provide inpatient, outpatient, and emergency services in accordance with Ministry of Health Regulation No. 3 of 2020. Outpatient services constitute the first point of interaction between patients and hospitals, making the quality of outpatient registration a key determinant of overall patient satisfaction. Standards for outpatient registration include speed, data accuracy, security, and staff friendliness; however, issues such as long queues, recording errors, and extended waiting times remain prevalent (Gultom et al., 2022).

Advances in information technology have encouraged hospitals to adopt online registration systems to improve efficiency and convenience. These systems enable patients to register visits via applications or websites, thereby reducing waiting times at registration counters (Indriyani & Herfiyanti, 2021). Studies have demonstrated that online registration quality is closely linked to patient satisfaction. For instance, patients at Pandan Arang Regional General Hospital in Boyolali reported higher satisfaction with online services than with onsite registration (Chasana, 2022). Similarly, at Shanto Vincetius Hospital in Singkawang, service quality through online registration was found to influence satisfaction by 74% (Andriani, 2022).

Nevertheless, challenges remain. Research at Palmatak Regional General Hospital showed that while reliability and responsiveness were rated positively, dimensions such as empathy and tangible aspects were only considered adequate (Saputra & Susaldi, 2023). This suggests that successful implementation of online systems depends not only on technological availability but also on service interaction quality and human

resource readiness.

At Wangaya Regional General Hospital in Denpasar, the Online Registration Application (APDOL) has been in place since 2022; however, long queues are still reported. This raises the question of whether the system has effectively improved patient satisfaction. Therefore, this study aims to examine the quality of APDOL and the satisfaction of outpatients, providing a basis for hospital management to enhance the quality of digital-based services.

RESEARCH METHODS

This study employed a quantitative approach with a descriptive design. This design was chosen because the study aimed to describe the quality of the online registration system (APDOL) and the level of outpatient satisfaction at Wangaya Regional General Hospital (RSUD Wangaya), Denpasar City. According to Sugiyono (2016), descriptive quantitative research is based on positivism philosophy, uses a specific population or sample, and produces numerical data that are subsequently analyzed statistically.

The research was conducted at the Outpatient Registration Unit of RSUD Wangaya, Denpasar City, one of the regional general hospitals that has implemented an online registration system since 2022. The study took place over two weeks, from February 26 to March 12, 2025, focusing on outpatients who used the APDOL service.

The population in this study consisted of all outpatient users of the online registration system at RSUD Wangaya in November 2024, totaling 811 patients. To determine the sample size, Slovin's formula with a 10% (0.10) margin of error was applied, resulting in a sample of 90 respondents. The sampling technique used was probability sampling, specifically simple random sampling, which allows for random selection without considering specific strata within the population. This method was chosen to ensure that every patient had an equal chance of being selected as a respondent.

The inclusion criteria for this study were outpatients using the APDOL system, aged over 17 years, able to communicate effectively, and willing to participate by signing informed consent. The exclusion criteria included patients who did not complete the questionnaire or refused to participate.

The variables studied consisted of two: the online registration system quality as the independent variable (X) and outpatient satisfaction as the dependent variable (Y). The quality of the online registration system was defined as a technology-based service that allows patients to register without being physically present at the hospital, measured through five dimensions: reliability, flexibility, integration, accessibility, and response time. Patient satisfaction was defined as the feeling experienced by patients after comparing the services received with their expectations, measured by five indicators: content, accuracy, format, ease of use, and timeliness.

The research instrument was a questionnaire adapted from previous studies (Widianto et al., 2023) that had undergone validity and reliability testing with a Cronbach's Alpha value > 0.60, indicating reliability. The questionnaire used a five-point Likert scale, ranging from score 1 (strongly disagree) to score 5 (strongly agree). Respondents completed the questionnaire directly, assisted by trained enumerators to ensure consistent understanding of the instrument.

The research procedure began with obtaining research permits from STIKes Wira Medika Bali, followed by ethical clearance from RSUD Wangaya. After approval, respondents were recruited at the outpatient registration area. Eligible respondents were

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given an explanation of the research objectives and asked to sign informed consent before completing the questionnaire. The collected data were then checked through editing to ensure completeness, coded by assigning numerical values to responses, scored for each item, and tabulated into tables.

Data analysis was carried out using univariate statistics to describe respondent characteristics, online registration system quality, and outpatient satisfaction levels. The results were presented in frequency distributions and percentages. Validity and reliability testing of the instrument had been conducted in previous research; therefore, the instrument was considered appropriate for use.

Statistical analysis was performed using SPSS version 25. All data were analyzed descriptively to identify the distribution of respondent characteristics and patient satisfaction levels. The findings were then interpreted in the context of hospital service quality, particularly the implementation of the APDOL online registration system at RSUD Wangaya, Denpasar.

RESULTS AND DISCUSSION

The results of this study indicate that the online registration system (APDOL) has been implemented at Wangaya Regional General Hospital (RSUD Wangaya), Denpasar City, and is used by outpatients to expedite the registration administration process. In general, the use of this system is considered capable of providing convenience, time efficiency, and supporting the improvement of service quality. However, some patients still encounter technical obstacles such as access difficulties or limited understanding in using the application.

The research findings are presented sequentially, starting with an overview of respondent characteristics, followed by an analysis of the online registration system quality based on five service dimensions, and the level of patient satisfaction with the use of APDOL at RSUD Wangaya, Denpasar City. The presentation of results includes the distribution of respondent data such as age, gender, education level, marital status, and occupation, aiming to provide a general overview of the patient profile as research subjects. Subsequently, the results of univariate analysis regarding system quality dimensions and patient satisfaction are presented.

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristics	Criteria	Frequency	Persentage
Gender	Male	52	57.8
	Female	38	42.2
Age	≤25 years	10	11.1
	26-35 years	21	23.3
	36-45 years	24	26.7
	>45 years	35	38.9
Education Level	Junior High School	1	1.1
	Senior High School	12	13.3
	Diploma	24	26.7
	Bachelor's Degree	53	58.9
Total		**90**	**100**

Based on the table above, it can be seen that among the respondents, 52 were male (57.8%) and 38 were female (42.2%). In terms of age, 10 respondents (11.1%) were ≤25 years old, 21 respondents (23.3%) were aged 26–35 years, 24 respondents (26.7%) were aged 36–45 years, and 35 respondents (38.9%) were over 45 years old. Regarding education level, 1 respondent (1.1%) had completed junior high school, 12 respondents (13.3%) senior high school, 24 respondents (26.7%) diploma level, and 53 respondents (58.9%) bachelor's degree.

Table 2. Frequency Distribution of Respondents Based on the Dimensions of Online Registration System Quality

Dimension	Indicator	TS (%)	N (%)	S (%)	SS (%)
System Reliability	Easy-to-access operation	6.7	6.7	58.9	27.8
	Registration is easy to understand	7.8	11.1	42.2	38.9
System Flexibility	Accessible anytime	1.1	14.4	44.4	40.0
	Access time according to needs	11.1	17.8	34.4	36.7
	Accessible to specific users	12.2	13.3	33.3	41.1
System Integrity	Ease of access	10.0	14.4	41.1	34.4
	Easy to understand	3.3	10.0	46.7	40.0
System Accessibility	User-friendly menu	6.7	16.7	42.2	34.4
	Menu layout easy to understand	4.4	8.9	51.1	35.6
	Clear website layout	6.7	11.1	35.6	46.7
System Response Time	Timely registration	4.4	8.9	50.0	36.7
	Quick response	4.4	10.0	35.6	50.0

Based on the analysis in Table 4.2 regarding the quality of the online registration system (APDOL), it is evident that the majority of respondents gave positive assessments of the system's reliability. A total of 53 respondents (58.9%) agreed that the operation or access to online registration could be carried out quickly, and 25 respondents (27.8%) strongly agreed, although a small proportion still felt it was less satisfactory. Regarding the registration indicator, 38 respondents (42.2%) agreed and 35 respondents (38.9%) strongly agreed that the registration process was easy to understand, indicating that in terms of system reliability, APDOL is considered fairly trustworthy in supporting the patient registration process.

Next, in the system flexibility dimension, the results showed quite varied perceptions. A total of 40 respondents (44.4%) agreed that the system could be accessed anytime, although 1.1% disagreed. For the access time indicator, 31 respondents (34.4%) agreed and 33 respondents (36.7%) strongly agreed that the system could be used at certain times, while a small proportion (11.1%) disagreed. This suggests that although the system is already flexible, some patients still experience limitations in access times. On the statement regarding who can access the system, 37 respondents (41.1%) strongly agreed and 30 respondents (33.3%) agreed, showing that the majority of patients felt the system was fairly inclusive, although some still felt limited.

In the system integrity dimension, most respondents perceived APDOL as easy to use. A total of 37 respondents (41.1%) agreed and 31 respondents (34.4%) strongly agreed that the system was easy to access. Similarly, in terms of ease of understanding, 42 respondents (46.7%) agreed and 36 respondents (40%) strongly

agreed that the system was easy to understand, while only a few (3.3%) disagreed. This shows that the system has been designed well enough to be understood by users with various educational backgrounds.

The system accessibility dimension also showed positive results. A total of 38 respondents (42.2%) agreed and 31 respondents (34.4%) strongly agreed that the menu layout in the system was easy to use. For the indicator of menu placement being easy to understand, the majority of respondents, 46 people (51.1%), agreed. Meanwhile, regarding website layout, 42 respondents (46.7%) strongly agreed and 32 respondents (35.6%) agreed. These results indicate that, in general, the menu design and system interface are considered clear and facilitate patients in the online registration process.

Meanwhile, for the system response time dimension, 45 respondents (50%) agreed and 33 respondents (36.7%) strongly agreed that registration was carried out on time. For the quick response indicator, 45 respondents (50%) strongly agreed and 32 respondents (35.6%) agreed, although 4 respondents (4.4%) disagreed. This means that the majority of patients considered APDOL capable of providing services with quick and timely responses.

Overall, from the analyzed dimensions, it can be concluded that the quality of the online registration system (APDOL) was rated positively by the majority of respondents. Reliability, integrity, and accessibility were the aspects most highly rated. However, weaknesses still remain, particularly in flexibility and access time, which are not yet fully optimized. This indicates that although the system has successfully improved service efficiency, further development is still needed to fully meet user needs.

Table 3. Frequency Distribution Results of Service Quality in the Online Registration System

Service Quality in the Online Registration System	Frequency	Persentage
Poor	0	0
Fair	18	20
Good	72	80
Total	**90**	**100**

Based on the table above, it can be seen that there were 0 respondents (0%) in the poor category, 18 respondents (20%) in the fair category, and 72 respondents (80%) in the good category.

Table 4. Frequency Distribution Results of Outpatient Satisfaction Levels

Outpatient Satisfaction Level	Frequency	Persentage
Dissatisfied	27	30
Satisfied	63	70
Total	90	100

Based on the table above, it can be seen that 27 respondents (30%) reported being dissatisfied, while 63 respondents (70%) reported being satisfied.

DISCUSSION

1. **Characteristics of Outpatients Using the Online Registration System (APDOL)**

   The results of the study show that the majority of respondents were male (57.8%). This finding is consistent with Ulya et al. (2022), who stated that men tend to be more vulnerable to disease than women, thus utilizing health services more frequently. However, another study by Saputra (2023) found that the majority of online registration users were women (61.9%), indicating that user characteristics may vary depending on location and health service needs.

   In terms of age, most respondents were in the >45 years category (38.9%). This suggests that older adults are beginning to adopt health technology due to higher medical needs. Nizwar et al. (2024) noted that age influences one's ability and decision to use health technology, where older adults access health services more frequently despite having lower digital literacy levels.

   Regarding education, the majority of respondents were bachelor's degree graduates (58.9%). This finding is in line with Djunadi (2024), who showed that the higher the level of education, the greater the expectations and understanding of patients toward technology-based health services. Higher education enables patients to be more critical in evaluating service quality, which affects satisfaction levels. Thus, the characteristics of outpatients using APDOL at RSUD Wangaya indicate that gender, age, and education significantly influence the adoption pattern of the online registration system.

2. **Quality of the Online Registration Application (APDOL)**

   This study found that the majority of respondents rated the quality of the APDOL application as good (80%). This supports the findings of Khairunnisa & Wati (2024), who stated that the quality of the system, information, and online registration services has met health service standards. The weakest dimension identified was system flexibility, particularly regarding access limitations, where 12.2% of respondents disagreed.

   According to the Information System Success Model by DeLone & McLean (2003), a good system must meet aspects of reliability, ease of use, flexibility, and response time. This study's results also align with Septian (2021), who emphasized that technical factors such as access speed and system stability remain the main challenges in implementing digital systems.

   Chasanah (2022) found that more than half of respondents (52.2%) were satisfied with the online registration system, while Saputra (2023) reported that 74.6% of patients rated online registration as good. This indicates that although service quality is generally considered good, patient perceptions vary, influenced by technical factors and user experience.

3. **Outpatient Satisfaction with the Online Registration System (APDOL)**

   The findings of this study show that 70% of respondents were satisfied with the APDOL system. This is close to Sulistiana (2022), who reported a patient satisfaction index of 78.36%, categorized as satisfied. In this study, the lowest-scoring dimension was accuracy, particularly regarding trust in the registration system, as well as the display format, which some patients found less appealing.

   According to the Servqual theory (Parasuraman et al., 1988), patient satisfaction is influenced by five key dimensions: reliability, responsiveness, assurance, empathy, and tangibles. This study confirms that although most dimensions are met, improvements are still needed, particularly in reliability (accuracy) and tangibles (system display).

   Chasanah (2022) also found that 52.2% of patients were satisfied with the online

registration system, while some were only moderately satisfied due to technical issues such as slow login processes. This is consistent with this study's findings that technical obstacles are the main cause of lower patient satisfaction.

Overall, the relatively high level of satisfaction indicates that APDOL implementation meets user needs. However, improvements in system flexibility, response speed, and user experience are still necessary to further increase satisfaction.

Research Limitations

One major limitation of this study was challenges in collecting data via questionnaires. Some outpatient respondents at RSUD Wangaya experienced difficulties completing the questionnaire due to limited writing or reading skills, which prevented them from providing data independently as required.

In addition, some respondents refused to participate in completing the questionnaire, even though they had been given detailed explanations about the purpose and content of the patient satisfaction survey. This refusal may have been due to discomfort, lack of interest, or concerns about data confidentiality, despite assurances of privacy. Therefore, the findings of this study should be interpreted with these limitations in mind.

CONCLUSION

This study found that the majority of outpatients at RSUD Wangaya using the online registration system (APDOL) were male, over 45 years old, and bachelor's degree graduates, which supported the adoption of healthcare technology. Most respondents (80%) rated the system quality as good, although flexibility and access speed remained weaknesses. Patient satisfaction was also relatively high (70%), indicating that APDOL generally met user needs, despite issues with accuracy, display format, and login processes. Overall, APDOL has improved service efficiency, but further technical optimization is required to achieve maximum results.

RECOMMENDATIONS

Based on the findings, it is recommended that the Puskesmas management and APDOL developers improve technical aspects, particularly system flexibility, access speed, and interface design to make it more user-friendly. Digital literacy training for patients, especially older adults, is also important to ensure more equitable system use. Furthermore, regular evaluations involving direct feedback from patients and healthcare staff should be conducted to ensure continuous system improvement. In this way, service quality and patient satisfaction with the online registration system can be further enhanced in line with user needs.

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