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ANALYSIS OF THE INFLUENCE OF CONVENIENCE AND BENEFITS OF INFORMATION TECHNOLOGY ON THE PRACTICE OF PHARMACY ELECTRONIC PRESCRIPTION SERVICES IN BANTEN PROVINCE

Dewi Afriliyanti[1], Maura Linda Sitanggang[2], Nurita Andayani[3]
[1,2,3] Program Magister Farmasi Universitas Pancasila, Jakarta, Indonesia

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ABSTRACT

Information technology has become a vital element in the health sector, including pharmaceutical services in pharmacies. The usefulness of information technology in pharmacies, especially electronic prescription services, is highly dependent on the acceptance of pharmacists and pharmaceutical technicians of this information technology. This study aims to analyze the factors that influence the acceptance of pharmacists and pharmacy technicians to information technology which has an impact on the implementation of the practice of electronic prescription services in pharmacies in Banten Province. The research method is cross-sectional using the Technology Acceptance Model which is analyzed using the Structural Equational Model method. There were 222 pharmacists and pharmacy technical personnel (TTK) from pharmacies in 8 cities/districts in Banten Province who responded to the study. The results of the multivariate test of the structural model show that 4 of the 5 hypotheses are proven. Perceived convenience is proven to have a positive effect on acceptance of information technology and the practice of electronic prescription services in pharmacies (coefficient value 0.618). Meanwhile, perceived benefits only proved to have a significant positive effect on acceptance of information technology (coefficient value 0.328), not on the practice of electronic prescription services at pharmacies (coefficient value -0.131), although it turned out that the attitude constructs of acceptance of information technology by pharmacists and TTK had a positive effect on practice of electronic prescription services in pharmacies (coefficient value 0.353). The research findings are expected to provide insight into the relationship of influencing factors and practical implications regarding perceived behavior from the use of information technology. This study is also expected to be the basis for the first national study conducted on pharmacists and TTK regarding user attitudes towards technology and its impact on electronic prescription services in pharmacies.

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1. INTRODUCTION

Pharmacy services provided by pharmacies are among the business units that have experienced a significant impact from the presence of information technology. The emergence of digital platforms to reach consumers from various locations provides opportunities for pharmacies to develop their business. Especially during the Covid-19 pandemic where people's mobility was limited, electronic-based health services such as telehealth, telepharmacy received important attention. In a press release on the official website of the Food and Drug Supervisory Agency (BPOM) in September 2020, during the Covid-19 pandemic there were differences in patterns of drug consumption and distribution through online media. Online sales in April 2020 even jumped by 480% (data from the Central Bureau of Statistics).

The government has issued various regulations related to the implementation of electronic-based health services, namely Regulation of the Minister of Health Number 14 of 2021 concerning Standards for Business Activities and Products in the Implementation of Risk-Based Business Licensing in the Health Sector followed by the implementation of a grand launching of public services registration marks for Electronic Pharmaceutical System Operators (PSEF). August 27, 2021, Regulation of the Minister of Health No. 26 of 2018 concerning Electronically Integrated Business Licensing Services for the Health

Sector and the latest regulations regarding online drug distribution are regulated in accordance with BPOM Regulation No. 8 of 2020.[1] Data released by the World Health Organization (WHO), the circulation of counterfeit drugs in Indonesia is still very high, reaching up to 25% of the total drugs in circulation.[2] The rapid development of technology has made it possible for anyone to carry out drug transactions freely and independently without supervision, including purchasing hard drugs.[3] This phenomenon does not only occur in Indonesia, but considering the vast territory and the very large population, the potential for abuse of this drug is even higher.

Referring to the Narcotics and Psychotropics Reporting Information System (SIPNAP) report from the Banten Provincial Health Office as of August 2021, out of 1348 pharmacies, 925 pharmacies have provided electronic prescription services as much as 69%. Meanwhile, 31% (419 pharmacies) did not serve e-prescriptions at all. Of the 69%, only 12% are conventional pharmacies, while the remaining 57% are franchised pharmacies that already have multichannel and omnichannel management. Of the 69% (925 pharmacies) that have provided e-prescription services, only 20% (185 pharmacies) have used PSEF and/or e-commerce, while 80% (740 pharmacies) have used personal websites or the WhatssApp application.

The Head of the Rupiah Money Management System Division at the Banten Province Representative Office of Bank Indonesia stated that Banten e-commerce transactions were the second lowest in Java, where only 11% of drugs were included in the personal care and cosmetics category. According to digital economic observers in Banten, the number of smartphone users reaches 70% of the population, but internet penetration is only 35-37%, even though the national target is >65%. [4] Based on pre-study data conducted by researchers, there are 31% of pharmacies in Banten that have not practiced electronic prescription services. Internet penetration and e-commerce transactions in Banten province are low, although public interest in online drug purchases is increasing and government support in the form of Permenkes and PerkaBPOM should be a positive impetus for e-prescription practice.

Several studies using bibliometric analysis from publications in the web science database for 2010–2020 show that one of the acceptance and use of technology models most often used and cited by researchers is the TAM (Technology Acceptance Model). The literature shows that e-commerce or electronic sales is the top list of TAM model applications and the health or e-health sector is included in the top 3 clusters that are most frequently studied besides the banking and education clusters. [5] Thus, research is needed to analyze the perceived convenience and benefits of accepting information technology which has an impact on the practice of electronic prescription services for pharmacies in Banten Province using the TAM (Technology Acceptance Model) model.

2. METHOD

This type of research is quantitative research. The research method used is stratified random sampling per district/city in Banten Province, where respondents per stratum will be randomly randomized. The measurement tool with an online questionnaire was tested for content validity and reliability. The survey results from all respondents who met the inclusion criteria were processed using Structural Equation Model (SEM) analysis to determine the effect between variables. The conceptual framework and research hypotheses are depicted in Figure 1.

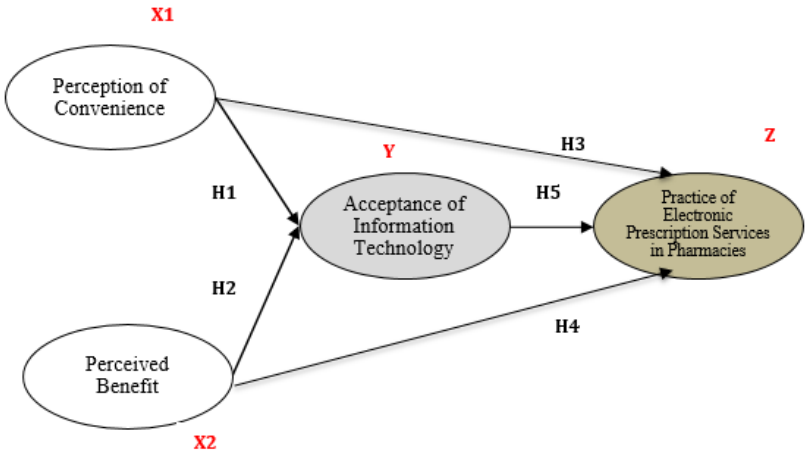

Figure 1. Concept framework and research hypotheses

3. RESULTS AND DISCUSSION

The number of respondents to the study was 222 pharmacists and pharmacy technicians (TTK) from pharmacies in 8 cities/districts in Banten Province. Of the 222 respondents, 23 respondents were from the city of Cilegon, 24 respondents from the city of Serang, 45 respondents from the city of Tangerang, 49 from the city of South Tangerang, 11 from Lebak district, 19 from Pandeglang Regency, 17 from Serang Regency, and 34 respondents from Tangerang Regency. This amount is sufficient to represent the stratification of each district/city in Banten province. 82.9% of respondents work as pharmacists, and 17.1% of pharmacy technicians. Research shows that there are still 23% of respondents who are not interested in working with PSEF.

Data was obtained from an online survey by distributing Google Forms to respondents. The survey data was tabulated and tested using the Structural Equation Model (SEM) to find out the relatively complex relationships between several independent variables. The results of the SEM test with the SEM coefficient value or standardize on each variable are as follows:

Table 1. SEM Coefficient Value of Influence Between Variables

Relationship between variables			Coefficient (Estimates)	Critical Ratio	P
Perception of convenience	➔	Internet technology acceptance	0,618	8,074	0,000
Perceived benefits	➔	Internet technology acceptance	0,328	5,416	0,000
Perception of convenience	➔	The practice of electronic drug prescription services	0,285	2,119	0,034
Perceived benefits	➔	The practice of electronic drug prescription services	-0,131	-1,294	0,196
Internet technology acceptance	➔	The practice of electronic drug prescription services	0,353	2,311	0,021

The results of the analysis of survey data related to the proposed hypothesis are as follows:

H_1 Effect of perceived ease of acceptance of information technology

The coefficient value of the variable perceived ease of acceptance of information technology is 0.618, a positive value indicating a unidirectional change. The calculation results obtained a CR value of 8.074 with a significance level of 0.000 ($p < 0.05$). This means that there is a significant influence of perceived ease of acceptance of information technology.

Several studies using the Technology Acceptance Model (TAM) were conducted to investigate the factors that influence the intention to use information technology in pharmacies. It was found that perceived usefulness and trust significantly influenced respondents' acceptance and intentions.[7,8,9,10,11,12] Meanwhile, perceived ease of use has a positive impact on perceived benefits and trust, while perceived risk has a negative impact on trust. Apart from all this, it turns out that the level of adoption of information technology in daily practice in pharmacies is still low.[13]

H_2 Effect of perceived benefits on acceptance of information technology

The coefficient value of the perceived benefits variable on acceptance of information technology is 0.328, a positive value indicating a unidirectional change. The results of the calculation show that the CR value is 5.416 with a significance level of 0.000 ($p < 0.05$). This means that there is a significant influence of perceived benefits on internet technology acceptance.

Other research results [14] shows that pharmacists' acceptance of using information technology is influenced by perceived ease of operation of the information technology system and perceived benefits that focus on the practicality of its use for daily work which results in increased performance, thereby reducing transaction time per patient. This is in line with Davis and Venkatesh, where they proposed that perceived usefulness and perceived ease of use are the main determinants of attitudes or intentions to use information technology and have been validated by many research journals. [15, 16, 17]

H_3 Effect of perceived convenience on the practice of electronic drug prescription services

From the results of the SEM test, it was obtained that the coefficient value of the variable perceived ease of practice of electronic drug prescription services was positive with a coefficient value of 0.285. The calculation results show that the CR value is 2.119 with a significance level of 0.034 (p <0.05). This means that there is a significant effect of perceived convenience on the practice of electronic drug prescription services

In this context the use of technology is the practice of electronic prescription services. From the research data on the practice of electronic prescription services, the average value is still low, namely 2.7224. This value reflects the number of respondents who disagree and strongly disagree with the practice of electronic prescription services. Even though the practice results were low, pharmacists basically agreed that the higher the perceived ease of prescription services, the higher the practice of using electronic prescriptions. This is in line with Davis and Venkatesh where they proposed that perceived usefulness and perceived ease of use are the main determinants of attitudes or intentions to use information technology and have been validated by many research journals. [15, 16, 17]

H_4 Effect of perceived benefits on the practice of electronic drug prescription services

The coefficient value of the perceived benefit variable on the practice of electronic drug prescription services is -0.131, a negative value indicating a change in the opposite direction. The calculation results show that the CR value is -1.294 with a significance level of 0.196 (p> 0.05). This means that there is no significant effect of perception of benefits on the practice of electronic drug prescription services. From this study it can be seen that perceived benefits only significantly affect pharmacists' and TTK's acceptance of information technology but not the practice of electronic prescription services in pharmacies.

This is indeed a concern because a number of studies still highlight that even though many pharmaceutical workers have high levels of digital literacy, most still choose not to use technology in their work practices, even though many studies state that perceived benefits are the main determinant of acceptance. attitude) and use (actual use) of a person towards information technology. [18, 19, 20]. From the research data, it can be seen that the practice of using information technology in most pharmacies is still focused on data entry for administrative and logistical purposes, and has not touched much on clinical pharmacy services, which of course is very much needed by patients who are served in a period of adaptation without face-to-face meetings. pandemic as it is today and of course it will continue to develop optimizing services towards telemedicine.

In this context, the pharmaceutical information technology system designed by PSEF should take into account user expectations, namely facilitating performance routines and reducing their workload and daily routines as well as their prescription acceptance rates. In parallel, this study reveals that ad-hoc situations such as lack of equipment technology (hardware facilities, software) and internet network infrastructure, power supply and the possibility of network outages must be focused as key success indicators because these factors have direct and indirect influences. significant effect on the acceptance of information technology. Training and formal communication channels between pharmacists and doctors and patients will improve outcomes, especially when system-based problems occur such as information technology system malfunctions, missing medication or patient data. In addition, it should be noted that an information system that is light, fast and responsive and user friendly, and an easy-to-use system interface will increase pharmacist productivity. [21]

H_5 Effect of pharmacist acceptance of internet technology on the practice of electronic drug prescription services

The coefficient value of the information technology acceptance variable on the practice of electronic drug prescription services is 0.353, a positive value indicating a unidirectional change. The calculation results showed that the CR value was 2.311 with a significance level of 0.021 (p <0.05). This means that there is a significant influence of acceptance of information technology on the practice of electronic drug prescription services.

Perceived convenience is proven to have a positive influence on the acceptance of information technology and the practice of electronic prescription services in pharmacies. Meanwhile, perceived benefits only proved to have a significant positive effect on acceptance of information technology, not on the practice of electronic prescription services at pharmacies. although the attitude construct of acceptance of information technology by pharmacists and TTK has a positive effect on the practice of electronic prescribing services in pharmacies.

Even though this hypothesis is proven, in this study the level of practice of electronic prescription services, especially clinical pharmacy services, is still low. This requires further research in the future. The cost factor for procurement, operation and maintenance of information technology systems and incentives for pharmaceutical staff can be another factor that can be analyzed. In this case, according to research which states that the cost of having infrastructure that supports electronic prescription services, especially with software that supports clinical pharmacy services to improve patient safety-based pharmaceutical services, requires financial commitment and financial investment, both from the prescribing doctor and the pharmacist. . Another problem detected is the fact that doctors are entitled to receive payment incentives for participating in the use of telemedicine while pharmacies bear operational costs of around IDR 3000 – IDR 4500 per transaction related to electronic prescription processing. This often becomes an obstacle to the implementation of electronic prescription services on the part of pharmacists and owners of pharmacy facilities. [15, 16, 17]

4. CONCLUSION

Analysis and discussion of the data concluded that there is a significant influence between perceived ease of acceptance of information technology; between the perceived benefits of acceptance of information technology; between perceptions of convenience towards the practice of electronic drug prescription services; and between the acceptance of information technology to the practice of electronic drug prescription services. However, there is no influence between perceived benefits on the practice of electronic prescription services at pharmacies.

The implications of this research are expected to be useful for electronic system developers (PSEF) and policy makers in the field of pharmaceutical services. More comprehensive dissemination of the benefits of PSEF and the effective and efficient use of information technology to all pharmacy facility owners, pharmacists and Pharmacy Technicians. It is also hoped that there will be ongoing training to increase the productivity and quality of pharmaceutical services.

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