MANAGING PATIENT LOYALTY THROUGH DIGITAL PATIENT EXPERIENCE

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ABSTRACT
This study aims at providing an understanding of the relationship between the digital experience of patients, innovation, and service quality to enhance patient loyalty to healthcare facilities in Indonesia. The data were then analyzed using the structural equation model. This study involved 214 patients at healthcare facilities in Indonesia, filling out questionnaires through an online survey. The data were analyzed using a structural equation model with Confirmatory Factor Analysis (CFA) for the measurement model analysis. The results indicated that patient loyalty could be influenced by healthcare facilities that simultaneously implemented innovation, patient digital experience, and service quality. The novelty of this study was obtained by testing and analyzing patient digital relationships, innovation, service quality, and patient loyalty in a model, and using healthcare facilities in Indonesia as a research analysis unit. Moreover, it was compared with the health and non-health industries in other countries.

Keywords: patient Loyalty; innovation; service quality; digital patient experience; healthcare; structural equation model

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INTRODUCTION
According to the 2018 Basic Health Research, more than half of Indonesia's population, or around 57.6% of the total population, has dental and oral problems. Economic growth in the health employment sector demonstrates that health services have the highest growth rate compared to other
sectors (Central Bureau of Statistics, 2021). The rapid growth of the health industry has encouraged business stakeholders to innovate and attempt various things in order to remain competitive. Health service facilities, whether in the form of independent practicing doctors, clinics, community health centers, hospitals and other health facilities, are one of the main stakeholders engaged in the health industry. Health facilities are required to sustain customer loyalty so that the stability of the company can be maintained.

According to Griffin (2002), customer loyalty is defined by consistent purchasing habits on an ongoing basis, implying repeated purchases and a desire to recommend products to others. Service companies use a variety of methods to increase customer loyalty, one of which is by improving customer experience. Customer experience in the health industry can be reflected in the ease of access to health services, including health services provided through digital services. Based on the East Ventures (2022), many business actors are starting to shift to utilizing digital technology, as seen by an increase in the MSME digitization index from 13.5 in 2021 to 23.6 in 2022. This shows that business actors are trying to provide a positive digital experience for their customers, in this case patients are customers who use health facilities services.

Even though it has not been able to increase patient loyalty, the digital experience is currently starting to show positive developments. One of the reasons is that when patients visit health facilities, the digital experience they receive is not followed by good service quality. Even though service quality can help improve the experience (Upadhyai et al., 2019; Suprayogi, et al., 2022) and can encourage the creation of customer loyalty (Satti et al., 2019).

On the other hand, services that do not fulfill patient expectations are another cause of low loyalty. Healthcare facilities have not made many updates or innovations that are useful and in accordance with patient needs. The low level of innovation is reflected in the Global Innovation Index (2022), which ranked Indonesia in 75th place on the list with an innovation index score of 27.9, indicating that Indonesia’s innovation is low and still far behind countries in Central Asia, such as Malaysia and Singapore. Even so, the use of innovation can help create digital experiences and encourage customer satisfaction (Chen et al., 2021), which can describe customer loyalty.

Based on the aforementioned phenomenon, it is clear that there is a gap between theory and empirical facts. Some research states that digital experiences can encourage customer loyalty (Silalahi & Rufaidah, 2018) but empirical evidence shows that healthcare facilities have not been able to achieve patient loyalty even though they have tried to provide digital experiences to patients. Several studies have shown that innovation and service quality enable industry actors to increase customer loyalty (Satti et al., 2019). Therefore, it is believed that healthcare facilities need to increase innovation and service quality in order to gain loyalty and compete. Therefore, the purpose of this study is to examine the connection between innovation, service quality, digital experience, and patient loyalty.

LITERATURE REVIEW

Innovation

Innovation is described as a change in the way things are done (Afuah, 2015). Change can occur not simply through the introduction of new products or services, production mechanisms, distribution, or marketing strategies, but also through specific activities, transaction structures, or different business models (Zott and Amit, 2001). In addition to being related to change and making something new, innovation should also be measured by how much the change gives value to customers (Grigorescu & Ion, 2021; Tödttling & Grillitsch, 2014). Innovation is related to value proven through organizational, marketing, process and product changes (Gunday et al., 2011), in which these changes relate to changes in business models that affect corporate sustainability (Danarajmananto et al., 2020).

Service Quality

Lewis and Booms (1983) stated that service quality reflects an assessment of the service’s ability to meet customer needs. Service quality can be achieved by providing services that exceed patient expectations and
achieving the best results with available resources. Effectively increasing patient satisfaction and loyalty, the quality of health services seeks to meet patient requirements. (Ranaweera & Prabhu, 2003; Al-Borie & Damanhour, 2013). Among the methods used to improve the quality of health services is the provision of experienced medical personnel who can influence patient care. (Shabbir et al., 2016). According to Fatima et al. (2018), the physical environment, customer-friendliness, communication, privacy and security, and the responsiveness of health service providers are indicators of the quality of health services.

**Digital Experience**

Customer experience, according to Kavitha and Haritha (2018), is the customer's perception of how a company or organization regards its customers. De-Keyser (2015) explains that customer experience is comprised of cognitive, emotional, physical, sensory, spiritual, and social factors that interact with consumers and service providers. Finally, according to Bagdare and Jain (2013), customer experience can be determined by paying attention to mood, enthusiasm, comfort, and other variables. In the meantime, digital service experience can be distinguished by digital service experience, digital image experience, and digital touchpoint experience (Silalahi & Rufaidah, 2018).

**Loyalty**

Loyalty explains how customers and stockholders are devoted to the company's value, as well as the quality of the relationship, which is represented in the buyer's repeated purchase behavior (Sramek et al., 2008). According to Zeithaml et al. (1996), loyalty can be shown by customers through the preferences of choosing a company over others, continuing to make purchases, or doing business with it in the future. The characteristics of loyal consumers indicate that they are valuable assets to the company. According to Griffin (2002), there are four characteristics of loyal customers: frequent purchases, purchases outside the product/service line, recommendations of other products, and resistance to the allure of similar products offered by competitors.

**Relationship between Loyalty, Digital Experience, Innovation and Service Quality**

This study investigates the digital experience, innovation, and service quality expected to achieve patient loyalty. According to Silalahi & Rufaidah (2018) digital experience, both directly and indirectly, can significantly influence the creation of loyalty (Silalahi & Rufaidah, 2018). In addition to being influenced by customer experience, loyalty can also be influenced by innovation. According to Ayinaddis (2022), there is a strong correlation between service innovation and customer loyalty. Khan and Iqbal (2020) discovered a significant correlation between innovation and customer loyalty and service quality through their research.

Several studies have also found that service quality can also affect customer loyalty. Satti et al. (2019) stated that companies can attract new consumers and keep existing customer loyalty by improving service quality, and providing excellent services that exceed customer expectations can improve sales revenue. Customer loyalty can also be influenced by digital experiences obtained through the availability of high-quality service (Sukendia & Harianto, 2021).

On the other hand, several studies have found that digital experience can be influenced by innovation and service quality. According to Su (2011), innovation has a significant influence on providing a customer experience. Innovation in the form of technology-based services can significantly influence the digital experience customers receive (Lemy et al., 2019). Other research suggests that improving the digital experience can be carried by improving service quality (Upadhyai, 2019).

Based on the aforementioned description, the hypothesis in this study is as follows:

- **H1:** Innovation has an influence on digital experience at healthcare facilities in Indonesia.
- **H2:** Innovation has an influence on patient loyalty to healthcare facilities in Indonesia.
- **H3:** Service quality has an influence on digital experience at healthcare facilities in Indonesia.
- **H4:** Service quality has an influence on
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patient loyalty to healthcare facilities in Indonesia.

H5: Digital experience has an influence on patient loyalty to healthcare facilities in Indonesia.

METHODOLOGY

This study employed explanatory research with a quantitative approach using the Structural Equation Model (SEM). The health service industry actors in the form of dental and oral health facilities were the unit of analysis in this study. Meanwhile, the observation units in this study were patients who received services at dental and oral health facilities in Indonesia. Population in this study who receive dental and oral treatment was 333,849 people. Quantitative research was conducted using a cluster sampling technique supported by stratified random sampling. The total number of samples determined can represent the majority of the population (55%) of dental and oral patients in Indonesia. The number of samples used in this study was 201 patients received services at dental and oral health facilities.

This questionnaire's inquiries are indicators used to investigate variable research dimensions. The responses are classified using a six-point Likert scale based on an ordinary scale. The AMOS 23.0 software was used to conduct hypothesis testing. The majority of respondents were female respondents (78.0%), under the age of 17 to 35 years (75.7%) and young adults with tertiary education (43%).

In this study, the measurement model analysis was carried out using Confirmatory Factor Analysis (CFA). The standardized loading value of all construct items in this research is greater than 0.50. As a result, all constructs are deemed valid. Furthermore, all structures have a CR value greater than 0.70 and an AVE value greater than 0.50. All exogenous and endogenous constructs have adequate construct validity and reliability based on the values of standardized loading, CR, and AVE. (Hair et al., 2010). The results of the measurement model test presented in Table 1.

<table>
<thead>
<tr>
<th>Construct</th>
<th>λ&gt;0.5</th>
<th>λ²</th>
<th>Error</th>
<th>CR ≥ 0.7</th>
<th>VE ≥ 0.5</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotion</td>
<td>0.802</td>
<td>0.643</td>
<td>0.357</td>
<td>0.932</td>
<td>0.774</td>
<td>Good Reliability</td>
</tr>
<tr>
<td>Process Improvement</td>
<td>0.937</td>
<td>0.878</td>
<td>0.122</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
<tr>
<td>Update</td>
<td>0.915</td>
<td>0.837</td>
<td>0.163</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
<tr>
<td>Organization Settings</td>
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<td>0.740</td>
<td>0.260</td>
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<tr>
<td>Service Quality</td>
<td></td>
<td></td>
<td></td>
<td>0.909</td>
<td>0.668</td>
<td>Good Reliability</td>
</tr>
<tr>
<td>Medical Equipment</td>
<td>0.802</td>
<td>0.643</td>
<td>0.357</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
<tr>
<td>Safe Interact</td>
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<td>0.653</td>
<td>0.347</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
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<td>Adequate Information</td>
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<td>0.760</td>
<td>0.240</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
<tr>
<td>Maintain Confidentiality</td>
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<td>0.712</td>
<td>0.288</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
<tr>
<td>Fast Service</td>
<td>0.755</td>
<td>0.570</td>
<td>0.430</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
<tr>
<td>Digital Experience</td>
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<td></td>
<td></td>
<td>0.906</td>
<td>0.764</td>
<td>Good Reliability</td>
</tr>
<tr>
<td>Adequate Digital Services</td>
<td>0.878</td>
<td>0.771</td>
<td>0.229</td>
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<td>Valid</td>
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<td>Digital Service Channels</td>
<td>0.897</td>
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<tr>
<td>Contact Alternative</td>
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<td>Patient Loyalty</td>
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<td></td>
<td></td>
<td>0.905</td>
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<td>Satisfied with Treatment</td>
<td>0.893</td>
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<td>Valid</td>
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<td>Back Consultation</td>
<td>0.837</td>
<td>0.701</td>
<td>0.299</td>
<td></td>
<td></td>
<td>Valid</td>
</tr>
</tbody>
</table>

Source: Author's finding
This study used absolute fit measures and incremental fit measures as model benchmarks because these two types of measurements have definite criteria for measuring model fit (Wijanto, 2008). Based on the calculation, the results of the Goodness of Fit Index (GFI) = 0.908, the model was fit because the GFI value was ≥ 0.90; Adjusted Goodness of Fit (AGFI) = 0.864, the model was marginal fit because the AGFI value was ≥ 0.80; Root Mean Square Error of Approximation (RMSEA) = 0.070, the model was fit because the value of RMSEA was ≤ 0.08; Comparative Fit Index (CFI) = 0.973, the model was fit because the CFI value was ≥ 0.90, Tuckett-Lewis Index (TLI) = 0.965, the model was fit because the TLI value was ≥ 0.90; and Incremental Fit Index (IFI) = 0.965, the model was fit because the IFI value was ≥ 0.90. According to Hair et al. (2016) and Ghozali (2006), calculation of the suitability test results shows that the value of the suitability test was in the acceptable range.

The results of calculating the connectedness between constructs are presented in Table 4, and an overview of the paths is illustrated in Figure 1. The t-values were H1 (t = 12.421), H2 (t = 2.557), H3 (t = 8.084), H4 (t = 7.400), and H5 (t = 1.601), each path was greater than the t-table, which had a value of 1.96. Therefore, it can be concluded that H1, H2, H3, and H4 were supported because t-count > t-table, while H5 was rejected because t-count < t-table,

The relationship between innovation and service quality to digital experience was positive with a total effect of $R^2 = 0.787$ or 78.7% while the remaining 21.3% was influenced by other factors not examined. Meanwhile, the relationship between innovation, service quality, and digital experience on patient loyalty was positive with a total effect of $R^2 = 0.760$ or 76.0% while the remaining 24.0% was influenced by other factors not examined.

![Figure 1: Research Finding](image)

Path selection was carried out by comparing the direct and indirect effects of each variable construct. The direct relationship between innovation and patient loyalty was 0.312, while the indirect relationship between innovation and patient loyalty through digital experiences was 0.174 calculated by multiplying the coefficient of innovation to digital experience (0.782) and digital experience to patient loyalty (0.223). The direct relationship between service quality and patient loyalty was 0.632, while the indirect relationship between service quality and patient loyalty through digital experience was 0.093 calculated by multiplying the coefficient of service quality to digital experience (0.419) and digital experience to patient loyalty (0.223). The path through the business model did not have a greater influence than the direct path without going through digital experience. Therefore, digital experience was not intervening...
RESULTS AND DISCUSSION
The healthcare business has seen the most development sector but has a low level of loyalty. This study aims to learn more about the factors that influence patient loyalty. The majority of this study was participated by female patients, because many female patients are more concerned about maintaining oral health. Furthermore, women are more concerned with their appearance, thus they are more likely to visit the dentist in order to improve their beauty and make them appear more attractive.

The results of this study revealed that the structural model was a good fit. This explained that if innovation, service quality, and digital experience were applied, they could be used simultaneously to increase patient loyalty. It revealed that when innovation and service quality were applied separately, the digital experience did not have a significant influence on creating patient loyalty. In addition, these results contradict those of previous studies, stating that digital experience has an influence on loyalty (Klaus dan Maklan, 2012; Jung and Chung, 2020; Silalahi and Rufaidah, 2018). This occurs because digital health services are not the primary service capable of fulfilling the needs of patients. Patients prefer to receive non-digital treatments, making digital services only a supplement to services.

Furthermore, the results of this study also contradict those of previous studies related to digital experience and loyalty carried out in other fields. Several studies in other countries, such as those conducted by Mbama and Ezepue (2018) in the UK and Makudza (2020) in Zimbabwe, stated that customer loyalty could be increased by using digital banking services because of the digital experience they provided. The use of digital banking services is a major necessity that is directly related to transactions and user security, both of which are important factors in banking. Studies on digital experiences in the health sector reveal different results. According to Purcarea (2016), the digital experience that patients get by optimizing programs and digital channels can enhance connection with patients. In other words, there is an increase in patient loyalty. Digital experience can increase excellence and become an additional value for an institution compared to its competitors.

However, the results from other studies on digital encounters are in line with the results of this study. The findings of this study conducted by Gummerus et al. (2004) revealed that digital experience from using healthcare providers' websites in Sweden had no impact on patient trust, satisfaction, or loyalty. In addition, Cain et al. (2000) stated that the digital experience obtained by users of digital health services did not increase loyalty because these users were easy to obtain information, easy to compare, and cost sensitive, so they tended to be disloyal because easier to compare with other service providers.

This study reveals that digital experience was not related to patient loyalty because patients in Indonesia perceived digital services as a complimentary service instead of a primary service. Digital health services differ from the main services, where all service processes require speed and security, which can only be obtained through the digitalization process (Mbama and Ezepue, 2018; Makudza, 2020; Mokha, 2022). Digital services in the health sector are not the primary service (Cain et al., 2000; Gummerus et al., 2004), but digital experience in the health sector is still not fully obtained by the majority of Indonesian people. Thus, the availability of offline services or direct services obtained through visits to health service facilities is considered a more primary health service required by the community. Therefore, it is better if the digital experience provided by healthcare facilities is not matched with non-digital services that do not affect the creation of patient loyalty.

Furthermore, this study found that patient loyalty in dental and oral health facilities in Indonesia was influenced by numerous factors, one of which was innovation. These results are supported by Ayinaddis (2022) and Khan & Iqbal (2020), stating that innovation has a significant influence on the creation of customer loyalty because changes made through innovation, including product innovation, process innovation, marketing innovation, and organizational innovation, provide patients with various benefits and convenience. Most likely, the influence of the innovations will be felt immediately by the patient, increasing patient satisfaction with a service, the patient's desire to
provide recommendations, and the patient’s desire to return.

These results suggest that other factors, such as service quality, affected patient loyalty. Security and privacy in the form of patient confidentiality and information management can determine the quality of health facilities because digitization encourages information disclosure, so that patients feel the need to protect themselves by maintaining information and privacy about themselves (Fatima et al., 2018). Furthermore, in a society accustomed to the rapid sharing of information, people want an instant and fast solution. Based on these results, it is obvious that this study supports the research results of Satti et al. (2019), who suggest that improving service quality can attract customers and encourage loyalty.

Support from innovation and service quality can also be useful in encouraging the development of a better digital experience for patients. These results are in line with previous research, which indicates that innovation has a role in providing good digital experiences to customers (Lemy et al., 2019), and that service quality can influence the improvement of digital services (Upadhya, 2019). Digital experiences are developed as a result of many innovations, such as process innovation. Quality service delivery is also necessary by paying attention to confidentiality, service speed, information, and infrastructure that allows the digital process to take place (Kinash & Savchuk, 2019).

This study reveals that the direct relationship between innovation and loyalty, as well as service quality and loyalty had a greater influence than the relationship between innovation and service quality through digital experiences. These results contradict Ayinaddis’ study (2022), stating that innovation influenced loyalty both directly and indirectly. This shows that dental and oral patients in Indonesia did not believe that the digital experience provided in various forms of digital services was the primary service that characterizes the quality and innovative level of health facilities. Patients believed that digital services were merely a complement, not the main service needed by patients, hence the direct relationship between digital experience and patient loyalty did not have a significant influence.

CONCLUSION

Previous scientific research suggests that innovation, service quality, and digital experience have an indirect effect on patient loyalty. Meanwhile, this study provides evidence that partially digital experiences do not significantly influence patient loyalty and that digital experiences do not play an intervening role. In addition, it is proven that innovation, service satisfaction, and digital experience when implemented together, have a significant influence on creating patient loyalty. There are several limitations to this study. First, this study examines health service facilities that provide dental and oral health services in Indonesia, so the interpretation of the research results may differ for companies engaged in industries other than the health service industry, as well as for health care facilities that do not provide dental and oral health services. Second, the interrelationships between indicators and the dimensions of each variable were not explored or discussed in depth in this study. Based on the evaluation and linkages of constructs that refer to previous studies, the findings of this study can be applied to environments having almost the same conditions as Indonesia. Further research is expected to study customer satisfaction as a significant aspect of achieving patient loyalty. These additions need to be further investigated for their influence on digital experience and patient loyalty.

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