



Collaborative Governance in Digital-Based Primary Health Care Management to Improve Community Satisfaction in Gowa Regency

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Abstract

This study aims to analyze the implementation of collaborative governance in digital-based primary healthcare management and its contribution to improving community satisfaction in Gowa Regency. The study focuses on stakeholder collaboration involving the local government, Health Office, community health centers (Puskesmas), healthcare workers, digital system operators, and the community in supporting digital healthcare service delivery. A qualitative research approach with a case study method was employed to obtain an in-depth understanding of collaborative governance practices in healthcare management. Data were collected through interviews, observations, and documentation involving healthcare officials, healthcare workers, digital operators, and community members. The data were analyzed using the interactive analysis model developed by Matthew B. Miles and A. Michael Huberman, consisting of data reduction, data display, and conclusion drawing. The findings reveal that collaborative governance has positively contributed to improving the effectiveness and accessibility of digital-based primary healthcare services in Gowa Regency. The implementation of digital systems such as electronic medical records, online registration, and digital health information services has improved healthcare administration, reduced waiting times, and increased service responsiveness. Stakeholder coordination, government commitment, and community participation support the success of healthcare digitalization. However, several challenges remain, including limited technological infrastructure, unstable internet connectivity, unequal digital literacy, and limited human resource capacity. Overall, collaborative governance has strengthened healthcare management and improved community satisfaction toward healthcare services.

Introduction

The rapid development of digital technology has significantly transformed various sectors of public services, including the health sector. Digital transformation in healthcare has become one of the government's strategic efforts to improve the quality, efficiency, transparency, and accessibility of health services for the community (Ricciardi et al., 2019). The integration of digital technology into healthcare services not only facilitates public access to medical services but also strengthens coordination among healthcare institutions, accelerates administrative processes, and supports data-based decision making. In Indonesia, digital health transformation has become an important component of national health system reform aimed at achieving equitable and high-quality healthcare services (Marcelo et al., 2018).

The Indonesian government, through the Ministry of Health, has continuously encouraged the implementation of digital-based healthcare systems, particularly in primary healthcare services such as community health centers (Puskesmas) (Erwina, 2019). Primary healthcare plays a strategic role as the frontline service in maintaining

and improving public health. Therefore, effective management of primary healthcare services is essential to improve the overall health status of society. According to the World Health Organization, primary healthcare is a key approach to ensuring inclusive, sustainable, and community-centered healthcare access (Rayner et al., 2018). In this regard, the digitalization of primary healthcare services has emerged as an important solution to address modern healthcare challenges, especially in enhancing accessibility, efficiency, and service quality.

In the context of local governance, the implementation of digital-based healthcare services requires collaboration and coordination among various stakeholders, including local governments, health departments, healthcare facilities, healthcare workers, private sectors, and the community as service users (Ejersbo 2016). The management of digital healthcare services cannot be effectively carried out by a single institution alone because it involves multiple actors with different responsibilities and resources. Therefore, collaborative governance has become a relevant approach to managing complex public services involving cross-sectoral cooperation (Woldesenbet, 2018).

Collaborative governance refers to a governing arrangement where public agencies directly engage non-state stakeholders in collective decision-making processes that are formal, consensus-oriented, and deliberative in order to formulate or implement public policies and programs (Doberstein, 2016). This concept emphasizes the importance of dialogue, trust-building, commitment, shared understanding, and collective action among stakeholders in public service delivery. In healthcare management, collaborative governance is essential to integrate the interests, resources, and capabilities of multiple stakeholders to achieve effective healthcare outcomes (Frankowski, 2019).

Gowa Regency, as one of the regions in South Sulawesi Province, has also implemented digital transformation initiatives in healthcare services (Lay, 2019). Several innovations in digital-based healthcare services have been introduced to improve the quality of healthcare delivery for the community. These include electronic administrative systems, digital health information services, online queue systems, telemedicine services, and integrated public health data management. The implementation of these digital systems is expected to improve service efficiency, reduce waiting times, facilitate healthcare access, and enhance community satisfaction with healthcare services (Laurenza et al., 2018).

However, despite these efforts, the implementation of digital-based primary healthcare management in Gowa Regency still faces several challenges. Some of the major obstacles include limited technological infrastructure, inadequate internet connectivity in certain areas, insufficient digital literacy among the community, limited human resource capacity, and weak coordination among stakeholders involved in healthcare management (Neumeyer et al., 2020). These issues indicate that the success of digital healthcare transformation depends not only on technological readiness but also on the effectiveness of collaboration among stakeholders.

Community satisfaction is another important indicator in assessing the success of healthcare service delivery (Akinyinka et al., 2019). Public satisfaction reflects the extent to which healthcare services meet the expectations and needs of the community. According to Philip Kotler, satisfaction is a person's feeling of pleasure or disappointment resulting from comparing perceived performance with expectations. In healthcare services, community satisfaction can be measured through several aspects, including

service accessibility, service speed, communication quality, responsiveness of healthcare workers, effectiveness of digital systems, and transparency in service delivery (Cabrera et al., 2017).

The inability to manage digital-based healthcare services effectively may negatively affect public satisfaction (Hewitt et al., 2020). Several common problems often encountered in digital healthcare implementation include system errors, limited understanding of digital applications among users, lack of technological adaptation among healthcare workers, and insufficient inter-agency coordination. Consequently, these problems may reduce public trust and satisfaction toward healthcare services provided by the government (Lanin et al., 2019).

Collaborative governance becomes increasingly important because it enables synergy among local governments, health agencies, healthcare providers, technology sectors, and the community in supporting the success of digital healthcare services (Schneider et al., 2019). Through effective collaboration, each stakeholder can contribute according to their respective roles and responsibilities. Local governments are responsible for policy formulation and budget allocation, health departments coordinate healthcare programs, healthcare facilities implement digital services, while the community acts as both service users and providers of feedback regarding healthcare quality (World et al., 2020).

Research on collaborative governance in digital-based primary healthcare management is important because studies specifically examining stakeholder collaboration in the context of digital healthcare services at the local level remain limited, particularly in Gowa Regency (Nur et al., 2020). Previous studies have generally focused on digital public services broadly without deeply analyzing collaborative processes among stakeholders in healthcare management. Therefore, this study is expected to contribute theoretically to the development of public administration studies, especially in the fields of collaborative governance and digital governance in healthcare management.

This research is also expected to provide evaluation material and recommendations for the Gowa Regency Government in improving the effectiveness of digital-based primary healthcare management. With effective Collaborative Governance, it is hoped that the quality of healthcare services can improve, thereby increasing public satisfaction with the healthcare services provided (Emerson, 2018). Based on this description, the researcher is interested in conducting a study entitled "Collaborative Governance in Digital-Based Primary Healthcare Management to Improve Public Satisfaction in Gowa Regency."

Method

Research Approach and Type

This study employs a qualitative research approach using a case study method. The qualitative approach is considered appropriate because this research aims to explore and understand the implementation of collaborative governance in digital-based primary healthcare management and its contribution to improving community satisfaction in Gowa Regency. Qualitative research enables the researcher to examine social phenomena comprehensively by focusing on experiences, interactions, perceptions, and collaborative processes among stakeholders involved in healthcare service delivery.

The case study method is applied because the research focuses on a specific phenomenon occurring in a particular context, namely the implementation of digital-based primary healthcare services in Gowa Regency. This method allows the researcher to obtain a

deeper understanding of stakeholder collaboration, healthcare digitalization practices, and the challenges faced in healthcare management. According to Robert K. Yin, a case study is an empirical investigation that examines a contemporary phenomenon within its real-life setting. Therefore, this method is suitable for analyzing collaborative governance practices in healthcare services.

Research Location

This research is conducted in Gowa Regency. The location is selected because Gowa Regency has implemented several digital healthcare innovations in primary healthcare management. The region has adopted digital systems in healthcare administration, online healthcare services, and public health information systems to improve healthcare quality and accessibility.

In addition, Gowa Regency provides a relevant setting to examine collaborative governance involving local governments, healthcare institutions, healthcare workers, and the community in managing digital healthcare services. The researcher considers this location strategic for analyzing the effectiveness of stakeholder collaboration in improving community satisfaction toward healthcare services.

Research Informants

The informants in this study are selected purposively based on their involvement, knowledge, and responsibilities regarding digital-based primary healthcare management in Gowa Regency. Purposive sampling is used because the researcher requires information from individuals who directly understand the implementation of collaborative governance and digital healthcare services.

The research informants consist of officials from the Health Office of Gowa Regency, heads of community health centers (Puskesmas), healthcare workers, digital healthcare system operators, local government representatives, and members of the community who use digital healthcare services. These informants are expected to provide detailed information concerning policy implementation, stakeholder collaboration, healthcare service effectiveness, and public satisfaction with healthcare services.

Data Sources

This study uses two categories of data sources, namely primary data and secondary data. Primary data are obtained directly from informants through interviews and field observations. These data focus on the experiences, perceptions, and understanding of stakeholders regarding collaborative governance and digital healthcare management.

Secondary data are collected from official government documents, healthcare regulations, statistical reports, previous studies, academic journals, books, and other relevant references related to collaborative governance and healthcare digitalization. Secondary data are utilized to support and strengthen the findings obtained from primary data.

Data Collection Techniques

Interviews are conducted using semi-structured interview guidelines to obtain comprehensive and in-depth information from informants. Semi-structured interviews provide flexibility for the researcher to explore emerging issues while maintaining alignment with the research objectives. Through interviews, the researcher gathers

information regarding stakeholder collaboration, digital healthcare implementation, challenges in service delivery, and community satisfaction. Observation is conducted to directly examine the implementation of digital healthcare services in healthcare facilities. Through this technique, the researcher observes the utilization of digital systems, stakeholder interactions, healthcare service procedures, and the condition of healthcare facilities. Observation enables the researcher to understand the actual implementation of healthcare services in the field.

Documentation is used to collect supporting information related to healthcare digitalization and collaborative governance. Documents collected include government policies, healthcare reports, organizational records, statistical data, photographs, archives, and official regulations related to digital healthcare services in Gowa Regency. Documentation serves as supporting evidence to validate findings obtained through interviews and observations. The data analysis technique used in this research follows the interactive analysis model proposed by Matthew B. Miles and A. Michael Huberman. The analysis process consists of data reduction, data display, and conclusion drawing.

Data reduction refers to the process of selecting, simplifying, organizing, and categorizing data obtained during field research. In this stage, the researcher identifies relevant information related to collaborative governance, healthcare digitalization, and community satisfaction. Data display involves presenting organized information in descriptive narratives, tables, charts, or thematic categories to facilitate interpretation and understanding of research findings. Through data presentation, patterns and relationships among variables can be identified more clearly.

Conclusion drawing is the final stage of analysis where the researcher interprets research findings and formulates conclusions based on the collected data. The conclusions are continuously verified during the research process to ensure consistency and validity. To ensure the credibility and trustworthiness of the findings, this research applies triangulation techniques. Triangulation is conducted by comparing data obtained from different sources, methods, and perspectives. Source triangulation is carried out by comparing information from government officials, healthcare workers, and community members. Method triangulation is implemented through interviews, observations, and documentation simultaneously.

In addition, member checking is also conducted to confirm the accuracy of the information provided by informants. Through member checking, informants are given opportunities to review interview results and verify whether the interpretations accurately represent their perspectives and experiences.

Research Focus

The focus of this study is to analyze the implementation of collaborative governance in digital-based primary healthcare management and its contribution to improving community satisfaction in Gowa Regency. The research specifically examines stakeholder collaboration, coordination mechanisms, implementation of digital healthcare services, supporting and inhibiting factors, and community perceptions regarding healthcare service quality. Through this focus, the study aims to provide a comprehensive understanding of how collaborative governance contributes to effective healthcare digitalization at the local government level.

Results

Implementation of Collaborative Governance

The implementation of collaborative governance in digital-based primary healthcare management in Gowa Regency demonstrates the involvement of multiple stakeholders in supporting healthcare service delivery through digital systems. The collaborative process involves the local government, the Health Office, community health centers (Puskesmas), healthcare workers, digital system operators, and the community as service users. This collaboration is necessary because healthcare digitalization requires integrated coordination, shared responsibilities, and continuous communication among institutions to ensure effective service delivery.

One of the important aspects highlighted in collaborative governance is the existence of coordination and communication among stakeholders. The Health Office of Gowa Regency plays a central role in coordinating digital healthcare programs and facilitating communication among healthcare institutions. Coordination meetings and technical discussions are conducted regularly to evaluate healthcare service implementation and address operational challenges encountered in the field. This collaborative process enables stakeholders to identify problems collectively and develop solutions together.

A representative from the Health Office explained:

"The implementation of digital healthcare services cannot be carried out by a single institution alone. We continuously coordinate with Puskesmas, healthcare workers, and technology operators to ensure that healthcare services run effectively and meet community needs."

The collaborative governance process also emphasizes trust-building among stakeholders. Trust is considered essential because the success of digital healthcare services depends on mutual commitment and cooperation between institutions. Healthcare workers and digital operators must trust the healthcare system and understand their respective roles in managing healthcare information and services. The government also attempts to build public trust by improving service transparency and accessibility through digital platforms.

A healthcare worker at one of the community health centers stated:

"Digital systems help us provide faster healthcare services, especially in patient registration and medical data management. However, good coordination between healthcare workers and system operators is necessary to prevent technical problems during service delivery."

Another aspect highlighted in the implementation of collaborative governance is stakeholder participation. The local government encourages the participation of healthcare institutions and communities in improving healthcare services. Communities are involved as service users who provide feedback regarding the quality and effectiveness of digital healthcare services. Public participation becomes important because community responses and complaints serve as evaluation materials for healthcare service improvement.

One community member explained:

"The online registration system makes healthcare services easier because we do not need to wait too long at the health center. However, some elderly people still face difficulties in using digital applications, so assistance is still needed."

The implementation of collaborative governance also reveals several supporting factors in digital-based primary healthcare management. These supporting factors include government commitment to healthcare digitalization, the availability of digital infrastructure, policy support, and the willingness of stakeholders to cooperate. The Health Office actively provides technical training and system assistance to healthcare workers to improve their digital competencies and service capabilities.

An official from the Health Office stated:

"We regularly conduct training for healthcare workers regarding the use of digital healthcare systems. Capacity building is important because digital transformation requires not only technology but also human resource readiness."

Despite these positive developments, several obstacles are still encountered in implementing collaborative governance in healthcare management. One of the major challenges is the limited technological infrastructure, particularly internet connectivity in several areas. In addition, differences in digital literacy levels among community members and healthcare workers also affect the effectiveness of digital healthcare services. Technical problems in healthcare systems occasionally disrupt service delivery and reduce service efficiency.

A digital healthcare operator explained:

"Sometimes the system experiences network disruptions, especially during peak service hours. This situation can slow down patient administration and affect healthcare services."

Furthermore, coordination among stakeholders sometimes faces challenges due to differences in institutional priorities and limited human resources. Some healthcare facilities still require additional technical personnel to manage digital systems effectively. Therefore, strengthening institutional coordination and improving resource capacity remain important aspects in enhancing collaborative governance implementation.

The implementation of collaborative governance in digital-based primary healthcare management in Gowa Regency has shown positive progress in improving healthcare service quality and community satisfaction. The collaboration among stakeholders contributes to better healthcare coordination, increased service accessibility, and more efficient healthcare administration. However, continuous improvement in infrastructure, digital literacy, stakeholder coordination, and technical support is still necessary to optimize digital healthcare services and sustain community trust in healthcare management systems.

Digital-Based Primary Health Care Management

The management of digital-based primary healthcare services in Gowa Regency has become an important strategy in improving the effectiveness, accessibility, and quality of healthcare services for the community. The implementation of digital systems in primary healthcare facilities, particularly at community health centers (Puskesmas), is intended

to simplify healthcare administration, accelerate service processes, improve medical data management, and enhance communication between healthcare providers and the community. Digital transformation in healthcare management also supports the government's efforts to create more responsive and efficient public healthcare services.

One of the major implementations of digital healthcare management in Gowa Regency is the use of electronic administration systems in healthcare facilities. Several community health centers have adopted digital patient registration systems, electronic medical records, online queue services, and digital health information systems. These systems are designed to reduce administrative delays, improve patient data accuracy, and facilitate healthcare workers in delivering healthcare services. Through digital administration, patient information can be stored systematically and accessed more efficiently during medical consultations and treatments.

A healthcare worker at a community health center explained:

"Previously, patient registration and medical records were handled manually, which often caused delays and data inaccuracies. With the digital system, patient information can now be accessed more quickly, making healthcare services more efficient."

In addition to administrative digitalization, digital healthcare management also includes the use of online service systems that enable patients to access healthcare services more conveniently. Online queue systems have helped reduce waiting times at healthcare facilities because patients can register before arriving at the health center. This innovation is particularly beneficial for community members who previously experienced long queues during healthcare visits.

One community member stated:

"The online queue system is very helpful because we can register from home and avoid waiting too long at the health center. The process is faster and more organized compared to manual registration."

Digital healthcare management also supports healthcare monitoring and reporting systems. Healthcare workers can input patient data directly into digital systems, allowing health departments to monitor healthcare trends, disease cases, and service utilization more effectively. This system improves the accuracy of healthcare reporting and assists policymakers in making data-based decisions regarding healthcare programs and resource allocation.

An official from the Health Office explained:

"Digital healthcare systems help us monitor healthcare services more accurately because data from community health centers can be integrated directly into the regional healthcare information system."

Furthermore, the implementation of digital healthcare services has improved communication between healthcare providers and the community. Healthcare information, service schedules, vaccination programs, and public health campaigns can now be disseminated through digital platforms and social media. This approach increases public awareness regarding healthcare services and promotes easier access to health-related information.

A healthcare worker stated:

"We use digital communication platforms to inform the community about healthcare programs, immunization schedules, and preventive health campaigns. It makes communication with the public more effective."

Despite these positive developments, the management of digital-based primary healthcare services still encounters several challenges. One of the major obstacles is the limited technological infrastructure, particularly internet network stability in certain areas of Gowa Regency. Unstable internet connectivity occasionally disrupts digital healthcare operations, especially during patient registration and data input processes.

A digital system operator explained:

"Network disruptions sometimes occur during service hours, especially when many patients access the system simultaneously. This situation can slow down healthcare administration processes."

Another challenge relates to digital literacy among community members and healthcare workers. Some elderly patients and individuals with limited technological experience still face difficulties in using online healthcare services and digital applications. In addition, some healthcare workers require continuous technical training to improve their ability to operate digital healthcare systems effectively.

One healthcare worker stated:

"Not all patients understand how to use digital healthcare applications, especially elderly people. Therefore, healthcare workers still need to assist them during the registration process."

Moreover, human resource limitations also affect the effectiveness of digital healthcare management. Some healthcare facilities still lack specialized technical staff responsible for managing healthcare information systems and addressing technical problems. This condition may reduce service efficiency and increase the workload of healthcare workers.

An official from the Health Office stated:

"Human resource capacity remains one of the challenges in healthcare digitalization. We continue to provide technical training to improve healthcare workers' digital competencies."

The management of digital-based primary healthcare services in Gowa Regency has contributed positively to improving healthcare efficiency, service accessibility, and healthcare administration. The implementation of digital systems has simplified healthcare processes and increased public convenience in accessing healthcare services. However, improvements in technological infrastructure, digital literacy, technical support, and human resource capacity remain essential to optimize digital healthcare management and ensure sustainable healthcare service quality for the community.

Supporting and Inhibiting Factors

The implementation of collaborative governance in digital-based primary healthcare management in Gowa Regency is influenced by various supporting and inhibiting factors. These factors play a significant role in determining the effectiveness of healthcare service delivery, stakeholder collaboration, and the success of healthcare digitalization

programs. The existence of supporting factors strengthens the implementation process, while inhibiting factors become challenges that need to be addressed to improve healthcare management and community satisfaction.

One of the main supporting factors is the strong commitment of the local government in encouraging healthcare digitalization. The government of Gowa Regency, through the Health Office, continuously promotes digital transformation in healthcare services by providing policy support, improving healthcare systems, and facilitating stakeholder coordination. Government commitment is reflected in the implementation of digital healthcare programs and the allocation of resources to support healthcare service innovation.

An official from the Health Office stated:

"The local government strongly supports healthcare digitalization because it can improve healthcare service efficiency and accessibility for the community. We continue to encourage healthcare facilities to adopt digital systems in service delivery."

Another important supporting factor is the availability of digital technology and healthcare infrastructure in several healthcare facilities. The implementation of electronic medical records, online registration systems, and digital healthcare reporting systems has improved healthcare administration and service efficiency. The use of digital systems enables healthcare workers to access patient information more quickly and accurately, which contributes to better healthcare services.

A healthcare worker explained:

"Digital systems make healthcare administration much easier. Patient data can be accessed quickly, and service processes become more organized compared to manual systems."

Stakeholder collaboration also becomes a significant supporting factor in implementing digital-based healthcare management. Coordination among the Health Office, community health centers, healthcare workers, and digital operators contributes to smoother healthcare service operations. Regular communication and technical coordination meetings help stakeholders identify service problems and develop solutions collaboratively.

A head of a community health center stated:

"Good communication between healthcare workers, digital operators, and the Health Office is essential because healthcare digitalization requires teamwork and coordination among all stakeholders."

In addition, community acceptance toward digital healthcare services supports the implementation process. Many community members appreciate the convenience provided by online healthcare services, especially digital registration systems and online healthcare information access. Public support encourages healthcare institutions to continue improving service quality and expanding digital healthcare innovations.

One community member stated:

"The digital registration system is very helpful because it saves time and reduces long queues at the health center."

Despite these supporting factors, several inhibiting factors still affect the effectiveness of collaborative governance and healthcare digitalization in Gowa Regency. One of the primary obstacles is limited technological infrastructure, particularly unstable internet connectivity in certain areas. Poor network quality sometimes disrupts healthcare service operations and delays administrative processes. This issue affects the efficiency of digital healthcare systems, especially during peak service hours.

A digital system operator explained:

"Internet network disruptions still occur, especially when many users access the system simultaneously. This situation can slow down patient registration and healthcare administration."

Another inhibiting factor is the limited digital literacy among some community members. Elderly patients and people with limited experience in using digital technology often encounter difficulties when accessing online healthcare services. As a result, healthcare workers still need to provide direct assistance during service processes.

A healthcare worker stated:

"Some patients, especially elderly people, still do not fully understand how to use digital healthcare applications. We often assist them during registration and service procedures."

Human resource limitations also become a challenge in healthcare digitalization. Some healthcare facilities still lack specialized personnel with adequate technical skills to manage digital healthcare systems effectively. This condition increases the workload of healthcare workers and may affect service quality. Continuous training and technical assistance are therefore necessary to improve staff competency in operating healthcare technologies.

An official from the Health Office explained:

"Not all healthcare workers have strong technical skills in managing digital systems. Therefore, we continue to organize training programs to improve their competencies."

In addition, coordination challenges among stakeholders occasionally become obstacles in collaborative governance implementation. Differences in institutional priorities, communication barriers, and limited operational resources may affect decision-making processes and service coordination. Effective collaboration requires continuous communication, shared understanding, and mutual commitment among all parties involved in healthcare management.

A healthcare worker stated:

"Sometimes coordination between institutions takes time because each institution has different responsibilities and priorities. However, communication remains important to maintain service quality."

The implementation of digital-based primary healthcare management in Gowa Regency is supported by government commitment, digital infrastructure, stakeholder collaboration, and community acceptance. However, several challenges such as technological limitations, low digital literacy, limited human resources, and coordination barriers still need to be addressed. Strengthening infrastructure, improving technical

capacity, and enhancing stakeholder coordination are essential steps to optimize collaborative governance and improve healthcare service quality for the community.

Level of Community Satisfaction

The level of community satisfaction toward digital-based primary healthcare services in Gowa Regency reflects the effectiveness of healthcare service delivery and the success of healthcare digitalization programs implemented by the local government. Community satisfaction is an important indicator in evaluating public healthcare services because it demonstrates how far healthcare services can meet the expectations, needs, and experiences of the community as service users. In the context of digital healthcare management, public satisfaction is influenced by service accessibility, service speed, healthcare quality, communication effectiveness, and the convenience provided through digital systems.

The implementation of digital healthcare systems in community health centers has generally improved community perceptions regarding healthcare service efficiency. Many community members stated that digital registration systems and online queue services reduced waiting times and simplified healthcare access. Previously, patients often experienced long queues and administrative delays during manual registration processes. However, the use of digital systems has made healthcare services more organized and efficient.

One community member explained:

"The online registration system is very helpful because we can register before arriving at the health center. It reduces waiting time and makes the healthcare process faster."

Another aspect contributing to community satisfaction is the accessibility of healthcare information through digital platforms. Healthcare information related to service schedules, vaccination programs, medical consultations, and public health campaigns can now be accessed more easily by the community. This accessibility increases public awareness regarding healthcare services and enables people to obtain healthcare information more efficiently.

A community member stated:

"Healthcare information is now easier to access through digital platforms. We can quickly get information about service schedules and healthcare programs without having to visit the health center directly."

The responsiveness of healthcare workers also plays an important role in determining community satisfaction. Several respondents indicated that healthcare workers provided adequate assistance during digital service procedures, especially for patients who faced difficulties using healthcare applications. Good communication and friendly service from healthcare workers positively influenced community perceptions toward healthcare services.

One patient explained:

"Healthcare workers are very helpful when we experience difficulties using the digital registration system. They explain the procedures clearly and assist patients patiently."

In addition, digital healthcare systems have improved the efficiency of medical data management, which contributes to better healthcare services. Electronic medical records enable healthcare workers to access patient information more quickly and accurately during medical consultations. This system reduces administrative errors and improves the continuity of healthcare services.

A healthcare worker stated:

"With electronic medical records, patient data can be accessed immediately, making medical services faster and more accurate."

Despite these positive developments, several issues still affect the level of community satisfaction. One of the common complaints from community members is related to occasional technical disruptions in digital healthcare systems. Network instability and system errors sometimes slow down registration processes and healthcare administration, particularly during busy service hours. These technical problems can reduce service efficiency and create dissatisfaction among patients.

One community member stated:

"Sometimes the system experiences network problems, and the registration process becomes slower. When this happens, patients have to wait longer."

Another challenge affecting community satisfaction is the limited digital literacy among certain groups of society, particularly elderly patients. Some community members still experience difficulties in using online healthcare applications and digital registration systems. As a result, they continue to rely on direct assistance from healthcare workers during healthcare service procedures.

A healthcare worker explained:

"Many elderly patients are not familiar with digital applications, so we often help them during the registration process and explain how the system works."

Furthermore, the availability of technological infrastructure also influences public satisfaction. In areas with unstable internet connectivity, healthcare services may not operate optimally. This situation can affect patient experiences and reduce the effectiveness of digital healthcare systems. Therefore, infrastructure improvement remains necessary to ensure equal service quality across all healthcare facilities.

An official from the Health Office stated:

"Infrastructure improvement is still needed, especially internet connectivity in certain areas, because stable networks are important for maintaining healthcare service quality."

The level of community satisfaction toward digital-based primary healthcare services in Gowa Regency can be considered relatively positive. The implementation of digital systems has improved service efficiency, healthcare accessibility, and healthcare administration. Communities generally appreciate the convenience and speed provided through healthcare digitalization. However, technical disruptions, limited digital literacy, and infrastructure challenges remain important issues that need continuous improvement. Strengthening healthcare infrastructure, improving digital literacy programs, and enhancing service responsiveness are essential to maintaining and increasing community satisfaction toward healthcare services in the future.

Discussion

This study aims to analyze the implementation of collaborative governance in digital-based primary healthcare management and its contribution to improving community satisfaction in Gowa Regency. The findings demonstrate that collaborative governance plays a significant role in strengthening the effectiveness of digital healthcare services through institutional coordination, stakeholder participation, shared responsibility, and integrated service delivery (Keyim, 2018). The study also reveals that digital transformation in healthcare management cannot operate effectively without collaborative mechanisms that connect government institutions, healthcare providers, technical operators, and the community within a shared governance framework.

The findings confirm the theoretical assumptions proposed by Chris Ansell and Alison Gash, who argue that collaborative governance depends on direct stakeholder engagement, trust-building, commitment, shared understanding, and continuous dialogue (Ansell et al., 2018). In the context of digital-based primary healthcare management in Gowa Regency, these dimensions are reflected in the coordination between the Health Office, community health centers, healthcare workers, and digital system operators. The implementation of healthcare digitalization required stakeholders to move beyond traditional bureaucratic structures toward more integrated and cooperative governance arrangements (Yang et al., 2019).

One of the major implications of this study is that digital transformation in healthcare should not be understood merely as technological modernization but as an institutional transformation process. The findings indicate that technology alone is insufficient to improve healthcare service quality if collaborative structures among stakeholders remain weak. The effectiveness of digital healthcare systems largely depends on institutional capacity, communication mechanisms, and collaborative decision-making processes. This finding supports the argument within digital governance literature that successful digital transformation requires organizational adaptation and inter-institutional collaboration rather than simple technological adoption (Wang, 2019).

The study also contributes to the broader discourse on public administration by demonstrating that collaborative governance in healthcare services is increasingly becoming a governance necessity rather than an administrative alternative. Healthcare problems are multidimensional and involve interconnected social, technological, administrative, and political dimensions (Gadelha et al., 2015). Consequently, healthcare management requires collective action among multiple actors. In Gowa Regency, collaborative governance enables healthcare institutions to coordinate healthcare information, improve service responsiveness, and facilitate policy implementation more effectively. The collaborative process reduces administrative fragmentation and promotes integrated healthcare delivery systems.

Another important discussion emerging from this study concerns the relationship between collaborative governance and public trust. The findings reveal that community satisfaction toward healthcare services is closely associated with perceptions of accessibility, responsiveness, transparency, and administrative efficiency. Digital healthcare systems improved healthcare accessibility by simplifying registration processes, reducing waiting times, and facilitating access to healthcare information. However, public trust toward digital healthcare services was not solely determined by technological efficiency. Instead, trust was strongly influenced by how healthcare

workers and institutions interacted with the community during service delivery (Grant et al., 2017).

This finding aligns with governance theories emphasizing that trust is socially constructed through repeated interactions, institutional reliability, and procedural fairness (Siddiki et al., 2017). In this context, healthcare workers function not only as service providers but also as intermediaries who mediate the relationship between digital systems and the community. The role of healthcare workers becomes particularly important in assisting elderly patients and individuals with limited digital literacy. Therefore, human interaction remains central within digital governance systems despite increasing technological automation.

The study further demonstrates that collaborative governance contributes to institutional learning and adaptive governance capacity. Regular coordination meetings, technical training, and communication among stakeholders create opportunities for organizational learning and policy adaptation. Through collaborative interactions, stakeholders can identify operational problems, exchange knowledge, and develop collective solutions. This adaptive governance capacity becomes essential in responding to rapidly changing technological and healthcare environments (Janssen et al., 2020).

Nevertheless, the findings also reveal structural and operational limitations affecting the effectiveness of collaborative governance implementation. One of the most significant challenges is unequal technological infrastructure, particularly internet connectivity limitations in several areas (West, 2015). This issue highlights the persistent digital divide that characterizes many developing regions. The digital divide does not merely represent technological inequality but also reflects broader socio-economic disparities affecting access to public services. Consequently, digital healthcare transformation risks reproducing social exclusion if infrastructure development and digital inclusion policies are not implemented simultaneously.

In addition, differences in digital literacy among community members and healthcare workers create uneven capacities in utilizing healthcare technologies. Elderly patients and individuals with limited educational backgrounds face greater difficulties in adapting to digital healthcare systems. This finding suggests that healthcare digitalization may unintentionally create new forms of service inequality if adequate assistance mechanisms are not provided. Therefore, digital governance should incorporate inclusive service approaches that accommodate vulnerable groups within healthcare systems (Tiffin et al., 2019).

The study also identifies institutional coordination challenges as an important limitation in collaborative governance implementation. Although stakeholder collaboration has generally functioned effectively, differences in institutional priorities, bureaucratic procedures, and resource capacities occasionally create coordination delays. This finding reflects a common challenge in collaborative governance literature where institutional fragmentation and administrative boundaries may hinder collective action. Effective collaborative governance therefore requires not only communication mechanisms but also strong leadership, institutional commitment, and governance integration strategies (Amsler, 2016).

From a theoretical perspective, this study expands the application of collaborative governance theory within the context of digital healthcare management at the local

government level. Most previous collaborative governance studies have focused on environmental governance, policy networks, and public administration contexts. This study contributes to the literature by demonstrating how collaborative governance operates within digital healthcare systems in developing regional contexts (Holeman et al., 2016). The findings suggest that collaborative governance frameworks remain highly relevant in analyzing healthcare digitalization because digital transformation inherently requires interdependent institutional relationships and collective governance arrangements.

The study also contributes to digital governance literature by emphasizing the importance of balancing technological innovation with human-centered governance approaches. Excessive reliance on technology without considering social capacities, institutional readiness, and community inclusiveness may reduce service effectiveness and public satisfaction. Therefore, digital governance should be understood as a socio-technical process involving interactions between technology, institutions, and society (Kompella, 2017).

Practically, the findings imply that local governments should strengthen collaborative governance mechanisms through institutional integration, stakeholder coordination, and continuous capacity development (Broccardo et al., 2019). Technical training programs for healthcare workers, digital literacy programs for communities, and infrastructure investment are essential to improving healthcare service quality. Furthermore, healthcare policies should prioritize inclusive digital transformation by ensuring that vulnerable groups are not excluded from healthcare access.

This study demonstrates that collaborative governance serves as a critical governance framework in supporting digital-based primary healthcare management and improving community satisfaction in Gowa Regency. The success of healthcare digitalization depends not only on technological innovation but also on the quality of collaboration among stakeholders, institutional adaptability, and the ability of governance systems to maintain inclusiveness, trust, and public responsiveness in healthcare service delivery (Brunetti et al., 2020).

Conclusion

This study concludes that the implementation of collaborative governance in digital-based primary healthcare management in Gowa Regency has contributed positively to improving healthcare service effectiveness and community satisfaction. The collaboration among the local government, Health Office, community health centers, healthcare workers, digital system operators, and the community has strengthened coordination, service accessibility, administrative efficiency, and healthcare responsiveness through the utilization of digital systems such as electronic medical records, online registration, and digital health information services. The findings indicate that the success of digital healthcare management is not solely determined by technological advancement but also by the effectiveness of stakeholder collaboration, institutional commitment, communication, and trust-building processes. Although several supporting factors such as government commitment, digital infrastructure, and stakeholder participation have facilitated healthcare digitalization, challenges including limited internet connectivity, unequal digital literacy, human resource limitations, and coordination barriers still affect service optimization. Nevertheless, the implementation of collaborative governance has generally enhanced healthcare service quality and

increased public satisfaction by creating more accessible, responsive, and efficient primary healthcare services in Gowa Regency.

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