Web-Based Digitalization of Posyandu Administration to Improve the Efficiency of Community Health Services in Parit Village

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Abstract ,
The recording of maternal and toddler health data in Parit Village has traditionally been conducted manually using ledger books. This conventional system makes the monthly report recapitulation process inefficient, time-consuming, and vulnerable to data entry errors. This community service program aimed to digitalize the Posyandu administrative system through the development and implementation of a web-based application named “Posyandu Parit.” The implementation process involved field observation, system design and development using Next.js and Supabase technologies, and technical training for village health cadres and midwives on the use of the application. The outcome of this program was the establishment of an integrated information system capable of recording ten maternal and child health examination parameters in detail, supported by an automatic report export feature in Microsoft Excel format. The implementation of the application reduced the time required to prepare monthly reports from several hours to only a few seconds and minimized the risk of losing health history data. In conclusion, the digitalization of Posyandu administration through a web-based application significantly improves the effectiveness of health service delivery and data management in Parit Village.

Keywords : Digitalization, Integrated Health Post, Parit Village, Administration, Health, Web

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INTRODUCTION

Integrated Service Posts (Posyandu) are at the forefront of maternal and child health monitoring at the village level. In Parit Village, Posyandu administration still relies heavily on a conventional recording system using a logbook. Initial observations indicate that this system presents several significant challenges for village cadres and midwives. The main challenges include the risk of searching for outdated patient data and the heavy workload of data recapitulation for monthly reports to the Community Health Center (Puskesmas). The process of compiling these reports requires cadres to manually recopy data from books into digital format, which is often time-consuming and prone to human *error* .

The importance of accurate and timely health data is a key reason for the urgent need for digital transformation within the Integrated Health Post (Posyandu) environment. With advances in information technology, the use of web-based applications offers a solution for efficient data management through more secure and structured *cloud- based storage* . Through this community service program, the development of the "Posyandu Parit" application, specifically designed to meet the local needs of Parit Village, is proposed. This application not only functions as a digital recording tool for ten health check-up parameters for pregnant women and toddlers but also features an automated reporting system.

The primary goal of this service is to facilitate digital health administration for Posyandu (Integrated Health Post) cadres, thereby providing faster and more professional services to the community. Furthermore, this digitalization is expected to increase the validity of village health data, which can then be used as a basis for decision-making in future health intervention programs.

METHOD

This community service activity was carried out through several systematic stages, including observation, system design, implementation, and technical education. The first stage began with field observations and in-depth interviews with village midwives and Posyandu cadres in Parit Village to map data needs and administrative constraints. Based on these observations, a system needs analysis was conducted, including parameters for examining pregnant women and toddlers according to the Maternal and Child Health (MCH) handbook standards.

The second stage is software development using *Agile methods* that enable rapid and adaptive feature development. The technologies used in building the "Posyandu Parit" application include *Next.js as a front-end* framework , Tailwind *CSS* for a responsive and user *-friendly interface design, and Supabase as a cloud-* based database management system . These technologies were chosen to ensure the application can be accessed stably via cadres' *smartphones* without requiring high device specifications.

The third stage is system implementation and testing. At this stage, the application is uploaded to a server for online access. Testing is conducted to ensure that key features, such as inputting 10 examination parameters (weight, blood pressure, fundal height, heart rate, etc.), summarizing toddler scale data, and exporting reports to Microsoft Excel, function accurately.

The final stage was outreach and technical training for community service partners in Parit Village. The training was conducted in a participatory manner, with cadres directly practicing how to enter real patient data into the system. In addition to user training, post-implementation support was also provided to ensure the application's continued use in the Posyandu's daily operations.

RESULTS AND DISCUSSION

Results from activity devotion This is A system information web- based “ Posyandu” The ditch " which has been succeed implemented in the village Parit . This application is designed to address the challenges of village midwives' work efficiency through three main features: patient profile management, in-depth examination recording, and reporting automation.

The profile management feature allows cadres to permanently store basic data on toddlers and pregnant women, including additional information such as the names of parents or husbands, which were often overlooked in manual recording. In the pregnancy examination feature, the application has accommodated ten health parameters according to Maternal and Child Health (MCH) service standards, which include weight, height, blood pressure, mid-upper arm circumference (MUAC), uterine fundal height, fetal position palpation, fetal heart rate (FHR), administration of Fe tablets, TT immunization, and health screening results. The addition of these parameters provides a more comprehensive Health History picture for village midwives in monitoring the progress of each resident's pregnancy.

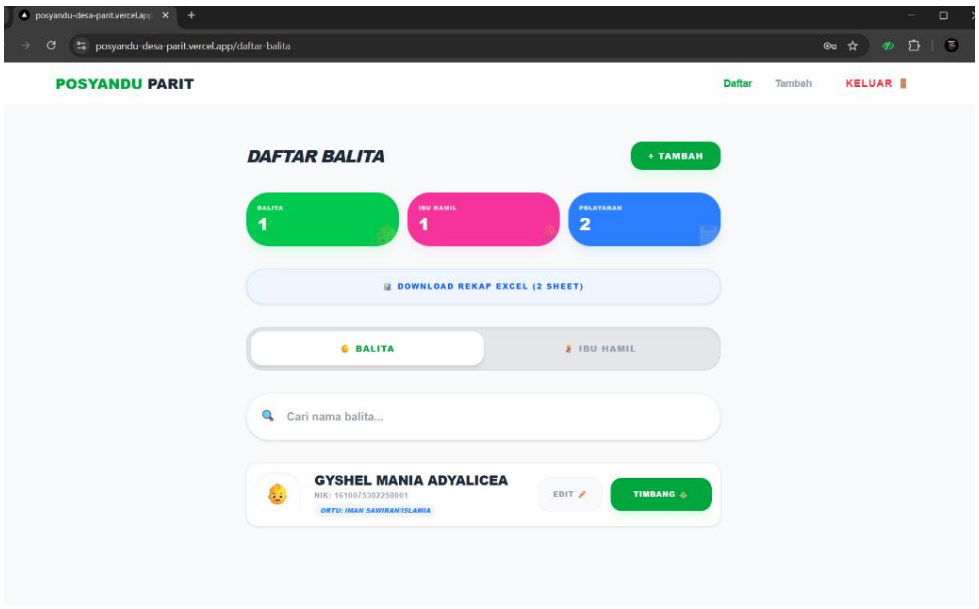

Figure 1. Features on the web application Integrated Health Post ditch

Discussion about effectiveness system seen in the process data recapitulation . Before existence application , midwife village need long enough time to copy data from book register to in format report monthly . With feature export developed reports , the system automatically produce Microsoft Excel files consisting of from two sheet separate work (*sheet*) for toddler and mother data pregnant . Automation This No only speed up time compilation reports , but also ensure the data reported consistent with the input data moment service .

During the mentoring period , cadres Integrated Health Post show high enthusiasm in use application . Responsively designed interface allows cadre use *smartphone* personal For input data directly moment process weighing and inspection ongoing . Things This change pattern previous work nature double (recorded in a book) Then copy to laptop) to be One step efficient digital work . However Thus , sustainability system This very depends on stability internet connection on site and commitment cadre in do regular data updates .

Figure 2. Introduction to the Posyandu website ditch to midwife village

CONCLUSION

The administrative digitization program through the "Posyandu Parit" application has provided a real solution to the health data management problem in Parit Village. The implementation of this system has successfully transformed the work patterns of village cadres and midwives from manual ledger-based recording to an integrated digital system. The main advantage of this application lies in its ability to accurately manage ten KIA examination parameters and its feature of automating monthly reports in Microsoft Excel format, which significantly saves administrative time. Based on the evaluation results, this application is very effective in improving data accuracy and facilitating access to patient health histories. For further development, it is recommended to add a child growth chart feature (Z-Score) and an automatic immunization schedule reminder system to improve the quality of preventive health services in Parit Village.

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AUTHOR CONTRIBUTION STATEMENT

MZR supervised the project and provided overall guidance throughout the research and implementation process . **RA** contributed to data analysis and evaluation of the system . **VNR** was responsible for program design and research material preparation . **MAM** developed the system and handled technical implementation . **P** provided supervision , validation , and final review of the research outcomes . All authors contributed to writing , reviewing , and approving the final manuscript .

CONFLICT OF INTEREST AND FUNDING

There there is no conflict of interest

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the Efficiency and Accuracy of Data Management (Kriswibowo et al., 2023). Digital Applications for Posyandu Recording, Such as Mobile or Spreadsheet-Based Systems, Can Speed Up the Data Collection Process, Minimize Errors, and Facilitate Reporting to the Community Health Center or Health Office (Kriswibowo et al., 2023). Unfortunately, Based on Initial Observations in Simogirang Village, Most Health Cadres, Dominated by Mothers with Various Educational Backgrounds, Still Have Limitations in the Use of Information Technology (Said et al., 2022). The Lack of IT Training is One of the Main Obstacles in Adopting Digital Systems to Support Their Tasks (Sarwoyo et al., 2024). The Lack of IT Competence Among Health Cadres Impacts the Slow Digitalization of Health Data at the Village Level, Which Ultimately Can Hinder Data-Based Decision Making by Stakeholders (Sintiya et al., 2025). In fact, the Digitalization of Posyandu Data Can Provide Significant Benefits, Such as Real-Time Monitoring of Toddler Nutritional Status, Rapid Identification of Health Cases, and Improved Coordination with Community Health Centers (Madiuw et al., 2024). Therefore, a Community Service Program That Focuses on IT Training for Simogirang Health Cadres is Needed to Improve Their Ability to Use IT…."

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