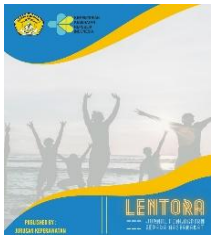

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Empowering Posbindu Cadres through Digital Health Training: Optimizing the ASIK Application in Kendal Regency

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ABSTRACT

Digital transformation in the health sector requires the optimization of health application utilization by community health cadres as the frontline providers of community-based services. However, limited digital literacy and technical skills remain significant barriers to the effective use of the Sehat Indonesiaku Application (ASIK) in Integrated Non-Communicable Disease Posts (*Posbindu PTM*) in rural areas. This community service activity aimed to optimize the role of *Posbindu* cadres in utilizing ASIK to support more efficient, accurate, and integrated recording and reporting of non-communicable disease (NCD) data in Sumberejo Village, Kaliwungu District, Kendal Regency. The implementation method consisted of preparation, a knowledge pre-test, socialization of the ASIK application, demonstrations and hands-on practice with intensive mentoring, and evaluation through a post-test and discussion. The activity was conducted on July 23, 2025, involving 20 *Posbindu PTM* cadres. The results demonstrated a significant improvement in cadres' knowledge and skills in using ASIK, as indicated by higher post-test scores compared to pre-test results and the successful installation and operation of basic application features by all participants for NCD data recording. This activity confirms that practice-based socialization and mentoring are effective in strengthening *Posbindu* cadres' capacity and supporting the implementation of digital health recording systems in rural areas.

INTRODUCTION

The use of information technology in health management is crucial, necessitating comprehensive attention and a conceptual framework in the implementation of health information systems to provide high-quality and accurate information for decision-making (Rismayuni et al., 2024).

This digital transformation has become a national development priority agenda to improve the quality of evidence-based health services (Rista et al., 2025). The development of digital health applications has become a significant phenomenon at both global and national levels (Larasati et al., 2025). One concrete manifestation of this technology is the *Aplikasi Sehat Indonesiaku* (ASIK), designed to meet the needs of presenting reports in the form of information (Rahmania et al., 2023). This application was developed to improve the efficiency of recording and monitoring by

integrating more than 10,000 community health centers (*puskesmas*) into a cohesive monitoring system (Aisyah et al., 2025).

Although ASIK aims to support service reporting in *puskesmas* and First Level Health Facilities (FKTP) (Riansyah & Megawaty, 2025), as well as to facilitate the monitoring of early detection of non-communicable diseases (NCDs) so that officers are no longer burdened by manual recording (Halid et al., 2025), its implementation in the field still faces major challenges (Rahmah et al., 2025). Based on the findings of Lukmenda & Jiu (2025), although ASIK increases the efficiency of immunization recording, many health workers—especially senior ones—experience operational difficulties due to a lack of adequate training and resistance to technological change. Furthermore, external factors such as inadequate infrastructure, minimal internet access, and limited supporting devices often hinder the effective use of the application (Konda et al., 2022). This indicates a gap between the potential efficiency of the application and the technical reality in the field that needs to be addressed immediately.

Health cadres play a central role as the spearhead in helping rural communities access health services (Jambormias et al., 2020). The use of ASIK should facilitate cadres in managing NCD *Posbindu* as a means of early detection (Rosidin et al., 2023). The services that can be recorded include immunization, infant and toddler health, adolescents, school-age children, pregnant women, and screening for non-communicable diseases (NCDs) (Nurkalis et al., 2025). However, in Sumberejo Village, Kaliwungu District, Kendal Regency, this potential is hampered by low access to accurate health information and a lack of knowledge and skills among cadres in operating the application. Health issues such as high rates of infectious and non-communicable diseases in this region demand a better data system, yet the digital literacy of cadres remains a major obstacle. Reflecting on other community service experiences, intensive training accompanied by mentoring has proven effective in increasing the knowledge and skills of cadres sustainably (Taqwin et al., 2025).

The urgency of this community service activity is to bridge these technical barriers so that digital health transformation can be realized at the village level. Based on this situation analysis, this service aims to optimize the role of *Posbindu* cadres in utilizing the *Aplikasi Sehat Indonesiaku* (ASIK) to support digital health data management in Sumberejo Village. Specifically, the activities are intended to: (1) increase cadres' knowledge about the strategic functions of ASIK, (2) improve cadres' technical skills in operating ASIK for recording and reporting, and (3) encourage the creation of an NCD data recording system that is more efficient, accurate, and integrated.

METHODS

This community service activity was conducted at the Sumberejo Village Hall, Kaliwungu District, Kendal Regency, on July 23, 2025. This location was selected as it serves as the central hub for the activities of Non-Communicable Disease (NCD) *Posbindu* cadres in the region. The target participants were 20 active NCD *Posbindu* cadres, determined through coordination with local village officials.

The implementation method for this service employed a participatory educational approach with a one-group pretest-posttest evaluation design. The activity stages were systematically structured as follows:

1. Preparation Stage
   This involved coordinating with the village government, mobilizing participants, and developing evaluation instruments as well as the guidance module for the *Aplikasi Sehat IndonesiaKu* (ASIK).
2. Initial Assessment Stage (Pre-test)
   Measurement of the cadres' baseline knowledge regarding digital health transformation and the basic functions of the ASIK application. At this stage, Body Mass Index (BMI) measurements were also conducted as part of the data simulation.
3. Socialization and Education Stage
   Delivery of materials concerning the urgency of digitalizing NCD recording through the *Aplikasi Sehat IndonesiaKu*.
4. Clinical Training Stage (Hands-on Practice)
   Technical demonstration and direct practice of using the ASIK application on each cadre's device, covering the process from login to inputting NCD screening data with intensive mentoring from the service team.
5. Final Evaluation Stage (Post-test) and Discussion
   Re-measurement of participants' knowledge post-intervention and a focused discussion to identify technical challenges encountered in the field.

Success indicators are measured through the following three primary indicators:

1. Cognitive Achievement
   A statistically significant increase in the cadres' knowledge scores between the pre-test and post-test values.
2. Technical Proficiency
   he successful installation of the application by all cadres and the ability of at least 80% of participants to independently operate the data input features without fatal errors.
3. Participation and Response
   The implementation of activities according to the plan with a minimum cadre attendance rate of 80% and positive feedback regarding program sustainability.

Evaluation is conducted using a mixed-methods data analysis approach:

1. Quantitative Analysis
   Test score data are analyzed using descriptive statistics to examine frequency distribution and mean values. To test the significance of the knowledge improvement, a comparative analysis is performed between the pre-test and post-test results.
2. Qualitative Analysis
   Data are obtained through participatory observation during the practice sessions and visual documentation. Qualitative analysis focuses on identifying barriers to technological adaptation, such as digital literacy challenges and device limitations, to formulate recommendations for sustainable mentoring strategies.

RESULTS AND DISCUSSION

The community service activity in Sumberejo Village was successfully implemented, involving 20 active NCD *Posbindu* cadres. All participants took part in the stages comprehensively, starting from registration and Body Mass Index (BMI)

measurement as an initial data simulation, through to the final evaluation stage. The active participation of the attendees was fully supported by the village government, which facilitated the necessary infrastructure and mobilized the cadres.

The evaluation of the activity's effectiveness was measured through a comparison of the pre-test and post-test results, which are presented in Figure 1.

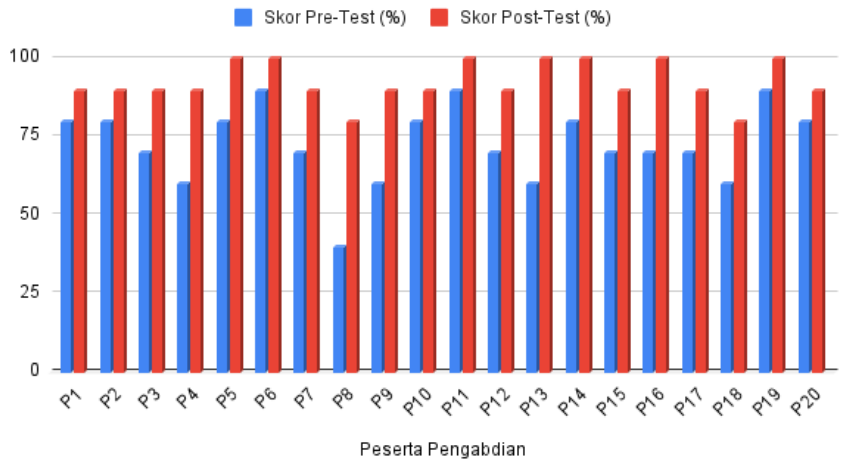

Figure 1. Pre-Test and Post-Test Results of Cadres' Knowledge Regarding ASIK

Based on Figure 1, a significant shift is observed in the participants' score distribution. During the pre-test stage, the cadres' knowledge scores were highly varied, with a tendency to fall within the moderate range. However, after the intervention, the graph consistently shifted to the right (higher scores), where the majority of cadres successfully achieved the maximum score (100). The interpretation of this data suggests that the educational method combining visual demonstrations and hands-on practice (as shown in Figure 2) is far more effective in transferring technical understanding compared to mere theoretical lectures.

Figure 2. Hands-on Practice Session and Intensive Mentoring on the Use of the ASIK Application

In addition to the improvement in cognitive scores, there was a significant shift in technological behavior. Prior to the activity, 100% of the cadres had never installed or used ASIK. Post-training, all cadres (100%) successfully installed the application and were able to independently operate basic features for recording NCD data. This demonstrates that initial barriers, such as a lack of technological familiarity, can be overcome through structured mentoring.

These results are consistent with the findings of Okpetu et al (2025), which state that structured training and simplified protocols enable frontline health workers to implement digital systems to their full potential. When compared to the community service conducted by Rosidin et al (2023) in other regions, the pattern of knowledge improvement in Sumberejo Village shows similarities. However, the advantage of this activity lies in the use of real-time data simulation—such as participants' own BMI measurements—which were directly inputted into the application, thereby providing a more relevant and practical experience.

Strengthening cadre capacity indicates that technical knowledge transfer must be supported by continuous peer networks to maintain cadre motivation (Johnson et al., 2025). From a systems perspective, the optimization of ASIK strengthens the principle of accountability within the New Public Service (NPS) paradigm, where health cadres serve as digital information bridges for communities in areas with limited access (Junardi et al., 2025).

Despite the high quantitative success, several qualitative challenges emerged during implementation. First, limitations in the smartphone specifications of several senior cadres hindered the application installation process, leading to a longer mentoring duration. This aligns with the argument of Mostafanejad et al (2025) that infrastructural readiness (devices and signal) is an absolute prerequisite for the successful integration of digital services. Second, there was initial psychological resistance from cadres who felt burdened by the transition from manual to digital systems.

Therefore, immediate success in training does not guarantee long-term sustainability unless followed by regular supervision from the Community Health Center (Puskesmas). As suggested by Iskandar et al (2024), ASIK socialization must be conducted continuously to maintain the cadres' proficiency. The limitations of this activity include the small sample size (20 participants) and the short duration of mentoring; hence, a long-term evaluation of the cadres' consistency in inputting real-world data in the field is necessary for future community service programs.

CONCLUSION AND RECOMMENDATIONS

This community service activity demonstrates that a participatory educational approach based on hands-on practice effectively bridges the digital literacy gap among Posbindu cadres, as evidenced by a significant increase in cognitive scores and a 100% successful adoption rate of the ASIK application. Beyond the specific results in Sumberejo Village, these findings provide broader implications that the success of digital health transformation at the grassroots level is not solely determined by technological availability but is heavily dependent on personal mentoring models that are relevant to the cadres' daily routines. This confirms that the digitalization of health data in rural areas holds substantial potential to improve national data accuracy if

coupled with appropriate and community-centered educational strategies, ensuring that technology is no longer perceived as an additional burden but as an essential performance support tool.

To ensure program sustainability, the local Community Health Center (Puskesmas) is encouraged to establish a "Digital Health Champion" structure at the village level, where proficient cadres serve as mentors for their peers to ensure an organic transfer of knowledge. Furthermore, the District Health Office should formulate Standard Operating Procedures (SOPs) for digital recording that are more flexible for cadres with device limitations, while also seeking infrastructural support from the village government, such as the provision of data packages or Wi-Fi access at village halls to facilitate real-time online reporting. Finally, for future researchers, it is recommended to conduct longitudinal studies to observe the consistency and quality of data inputted by cadres over a 6 to 12-month period post-training, allowing for a more in-depth and comprehensive evaluation of the long-term impact of this digitalization on the non-communicable disease monitoring system.

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