

EMPOWERING COMMUNITIES THROUGH DIGITAL HEALTH LITERACY: A LIFELONG LEARNING MODEL IN “KADER SURABAYA HEBAT”

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Abstract: Background: Community based health surveillance plays a crucial role in strengthening urban health resilience. The Surabaya City Government has innovated traditional volunteerism by mobilizing more than 28,000 volunteers through the Kader Surabaya Hebat (KSH) program, which is now integrated with the “Sayang Warga” digital platform. **Purpose:** This study examines the KSH program as a model of community empowerment, with a particular focus on how digital health literacy supports integrated surveillance and serves as a medium for lifelong learning. **Method:** This study employed a scoping review approach following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. A total of 199 records were identified from Google Scholar and official government sources. After applying the inclusion and exclusion criteria during screening, 16 relevant documents were selected for further analysis. **Results:** The findings highlight three key pillars: (1) Institutional Integration, where formal regulations such as the mayoral regulation ensure program sustainability; (2) Digital Transformation, where the “Sayang Warga” application functions as a real time data collection tool as well as a platform for continuous learning; and (3) Capacity Building, where the adoption of digital platforms enhances both digital literacy and social competencies among volunteers, thereby fostering a sustainable lifelong learning ecosystem. **Conclusion:** The KSH program demonstrates that digital health literacy is a fundamental requirement for effective community based health surveillance. Furthermore, positioning digital volunteerism as a form of lifelong learning enables urban governments to develop more adaptive and data driven public health systems.

Keywords: Community based health surveillance, digital health literacy, community empowerment, lifelong learning, Kader Surabaya Hebat.

1. INTRODUCTION

Community-based health surveillance plays an important role in strengthening urban health resilience, particularly in metropolitan areas where formal health systems often face limitations in early disease detection (Maharrani et al., 2024). The development of electronic government (e-government) systems has transformed conventional volunteer-based activities into digital community surveillance systems supported by mobile applications (Sri & Fatimah, 2023). This transformation requires community volunteers to possess adequate digital literacy and technical competencies to record local health data in real time. However, differences in educational and social backgrounds among volunteers remain a challenge in the implementation of digital health systems (Meiregina & Widiyarta, 2023). In Surabaya, this digital health approach is reflected through the involvement of more than 28,000 volunteers in the Kader Surabaya Hebat (KSH) program (Kusumadewi & Rosdiana, 2024). To support volunteer coordination and community-based health surveillance, the Surabaya City Government introduced the “Sayang Warga” mobile application. The implementation of this platform is supported by Surabaya Mayor Regulation Number 15 Year 2025, which regulates volunteer responsibilities, operational

coordination, and performance-based incentives. Despite its benefits, the transition from conventional reporting systems to mobile-based applications has created several socio-technical challenges, particularly related to digital literacy and application usability.

Previous studies on digital volunteerism have mainly focused on administrative effectiveness and technical reporting systems, such as the implementation of the “Carik Jakarta” application in Jakarta (Arsy et al., 2026) and smartphone-based monitoring systems for Village Health Volunteers in Thailand (Turnbull et al., 2023). However, studies examining digital health transformation from a community education and lifelong learning perspective remain limited. Most studies still position digital applications primarily as administrative tools rather than as instruments for strengthening community learning and empowerment. Therefore, this study aims to examine the role of digital health literacy in supporting integrated urban health surveillance within the KSH program. This study also explores how the “Sayang Warga” application contributes to community empowerment and the development of a sustainable lifelong learning ecosystem. By synthesizing evidence related to policy integration, digital transformation, and community capacity building, this study is expected to provide a conceptual framework for strengthening community-based public health systems in urban settings.

2. METHODOLOGY

2.1 Research Design and Framework

This study This study employed a scoping review approach based on the PRISMA-ScR guidelines to examine the role of the “Sayang Warga” mobile health (mHealth) application within the Kader Surabaya Hebat (KSH) program in supporting digital health literacy and community-based lifelong learning. A scoping review was selected because the KSH program involves digital governance, community health surveillance, and social empowerment. This approach enabled the mapping and synthesis of evidence from academic literature and official institutional documents. The study also positions digital health applications not only as administrative tools, but also as media for continuous learning and competency development among community volunteers.

2.2 Search Strategy and Selection Process

The literature search The literature search was conducted systematically using Google Scholar as the primary database due to its broad coverage of public health and regional academic publications. The search strategy used the following keywords: (“Kader Surabaya Hebat” OR “KSH”) AND (“Sayang Warga” OR “mHealth”) AND (“Digital Literacy” OR “Effectiveness”). Additional searches were conducted through official government document registries to obtain relevant regulations and health reports, including Surabaya Mayor Regulation Number 15 Year 2025 and the Surabaya City Health Profile reports. The document selection process followed the PRISMA 2020 framework consisting of identification, screening, eligibility, and inclusion stages.

A total of 199 records were identified, including 196 documents from Google Scholar and 3 records from official government sources. After duplicate removal and screening based on inclusion and exclusion criteria, 16 documents were included in the final qualitative synthesis. The selected literature consisted of local studies from Surabaya, comparative studies on the Carik Jakarta system, international evidence from Thailand’s Village Health Volunteers program, and studies related to community health learning frameworks. The complete selection process is presented in Figure 1.

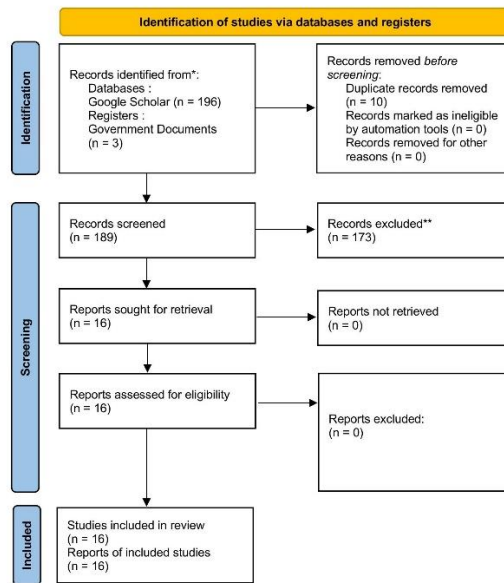


Figure 1. PRISMA Flow Diagram of Literature Selection Process.

3. RESULTS & DISCUSSION

3.1 Synthesis of Selected Literature

The scoping review identified 16 eligible documents for inclusion in the final analysis. To summarize the characteristics and conceptual focus of the selected literature, Table 1 presents an analytical matrix of the reviewed studies based on the three major thematic areas identified during the synthesis process: institutional integration, digital transformation, and community capacity building.

Table 1: Analytical Matrix of Reviewed Literature Domains

Thematic Pillars	Core Evaluated Indicators	References
Institutional Integration	Legal frameworks, multi-sectoral governance, and performance-based incentives	(Ermitajani Judi et al., 2023; Pemerintah Kota Surabaya, 2025; Songserm et al., 2021).
Digital Transformation	Application usability, mobile reporting systems, and technical implementation challenges	(Arsy et al., 2026; Grescia Alfita Miryana & Eva Hany Fanida, 2025; Mahmuda Rahadi et al., 2025; Pemerintah Kota Surabaya, 2023; Tri Prayoga, 2024; Turnbull et al., 2023; Tuswoyo et al., 2022).
Community Capacity Building	Digital health literacy, volunteer competencies, and lifelong learning approaches	(Bing-Jonsson et al., 2023; Dinas Kesehatan Kota Surabaya, 2025; Kusumadewi & Rosdiana, 2024; Maharrani et al., 2024; Meiregina & Widiyarta, 2023; Sri & Fatimah, 2023).

3.2 Analysis of Findings

Based on the thematic synthesis presented in Table 1, the findings indicate that the Kader Surabaya Hebat (KSH) program functions as an integrated community-based public health system involving more than 28,000 active neighborhood volunteers (Kusumadewi & Rosdiana, 2024). The program is formally supported through Surabaya Mayor Regulation Number 15 of 2025 issued by the Surabaya City Government, which regulates volunteer responsibilities, intersectoral coordination, and performance-based incentives. In practice, the “Sayang Warga” mobile health application serves as a real-time data management platform for community health surveillance. The application is used to monitor various health indicators, including stunting surveillance, maternal health risks, and dengue vector monitoring at the community level (Tri Prayoga, 2024). Several studies conducted at the kelurahan level also reported that the application improved reporting efficiency and facilitated the monitoring of public health services across urban communities (Grescia Alfita Miryana & Eva Hany Fanida, 2025).

Despite these advantages, several implementation challenges remain evident. The transition from conventional paper-based reporting systems to mobile-based digital reporting has created technical and operational difficulties among volunteers, particularly due to recurring server disruptions and complex application interfaces (Sri & Fatimah, 2023). In addition, the diverse educational backgrounds and limited digital literacy among middle-aged volunteers contribute to unequal technological competencies across different community areas (Meiregina & Widiyarta, 2023). Overall, the findings demonstrate that the implementation of the KSH program and the “Sayang Warga” application reflects the growing integration of digital governance, community participation, and public health surveillance within urban health systems. At the same time, the results highlight the importance of continuous digital capacity-building to sustain community-based health surveillance programs.

4. CONCLUSION

This study highlights that the implementation of the Kader Surabaya Hebat (KSH) program and the “Sayang Warga” application have strengthened community-based health surveillance by integrating digital governance, volunteer participation, and real-time health reporting systems. The findings indicate that digital transformation improves reporting efficiency and supports urban public health monitoring; however, challenges related to digital literacy and technical system barriers remain significant. Therefore, continuous digital capacity-building and sustainable community education are essential to strengthening the effectiveness of community-based mHealth programs in urban settings.

ACKNOWLEDGEMENT

The authors would like to express their gratitude to the Surabaya City Government, Surabaya City Health Office, and all researchers whose publications contributed to this study.

Appreciation is also extended to the organizing committee of the Asian Lifelong Learning Conference (ASAIHL 2026) for providing the opportunity to present this work.

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