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The Effectiveness of the Simpati Program in Preventing Stunting: A Digital Solution for a Healthy Generation in Sumedang Regency

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Abstract

This study aims to analyze the effectiveness of the SIMPATI application as a digital innovation for stunting prevention in Sumedang Regency using a qualitative case study approach. The evaluation adopts Wirawan's policy evaluation framework, covering three key dimensions: process, benefit, and impact. Data were collected through in-depth interviews, participatory field observations, and documentation involving health workers, posyandu cadres, mothers of toddlers, and local government officials. The findings show that SIMPATI contributes positively to real-time child nutrition monitoring, increases mothers' participation in posyandu, and improves the accuracy and speed of data recording and service delivery. From a process perspective, SIMPATI supports better coordination among stakeholders despite infrastructure and digital literacy challenges. From a benefit perspective, it facilitates health awareness, improves user experience, and enhances data access. From an impact perspective, the program has led to increased maternal engagement and a decline in the number of children at risk of stunting over six months. However, issues such as limited infrastructure and human resource readiness remain obstacles to long-term sustainability. The study recommends enhancing digital infrastructure, conducting regular training, and strengthening multi-sectoral collaboration to ensure the successful scaling of SIMPATI as a national stunting prevention model.

Keywords: SIMPATI, stunting prevention, policy evaluation.

INTRODUCTION

Stunting remains one of the most pressing public health challenges in Indonesia. Defined as a condition of impaired growth and development in children under five years of age due to chronic malnutrition and recurring infections—particularly during the critical

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first 1,000 days of life—stunting has far-reaching impacts (World Health Organization (WHO), 2015). Affected children tend to have significantly shorter stature compared to their peers, along with delayed cognitive development, weaker immune systems, and a higher risk of non-communicable diseases in adulthood(Soliman et al., 2014). These developmental setbacks do not only compromise individual well-being but also pose long-term threats to the productivity, resilience, and global competitiveness of Indonesia's future workforce.

The magnitude of the problem is underscored by national health data. According to the 2018 Basic Health Research (Riskesdas), Indonesia's stunting prevalence stood at an alarming 30.8% (Badan Penelitian dan Pengembangan Kesehatan (Balitbangkes), 2018). While the issue is often associated with remote or underdeveloped areas, data reveal that stunting is also prevalent in regions with relatively advanced infrastructure(Ayuningtyas et al., 2022). Sumedang Regency, located in West Java Province, exemplifies this reality, where high stunting rates persist despite steady socioeconomic and infrastructural progress.

In response to this national crisis, the Indonesian government launched the National Strategy for the Acceleration of Stunting Prevention (Stranas Stunting) in 2017 (Kementerian Kesehatan Republik Indonesia, 2017). This strategy is built upon five main pillars: (1) strong leadership and commitment from central to local levels; (2) behavioral change and community empowerment; (3) convergence of specific and sensitive interventions through cross-sector collaboration; (4) strengthened food and nutrition security; and (5) the development of robust, data-driven monitoring and evaluation systems (Kementerian Kesehatan Republik Indonesia, 2017). Within this strategic framework, the use of information technology has emerged as a crucial enabler to enhance the speed, precision, and effectiveness of stunting-related interventions.

Sumedang Regency stands out as one of the pioneering regions in embracing digital transformation in public governance, particularly through the "Sumedang Digital Region" initiative. A key innovation under this initiative is the SIMPATI application (*Sistem Pencegahan Stunting*), which was developed to support integrated, real-time monitoring of child growth and nutritional status. Beyond surveillance, SIMPATI serves as a digital

platform for community education, targeting parents and caregivers with relevant content on maternal and child health.

As illustrated in Figure 1, the SIMPATI interface is designed for accessibility and user-friendliness. It integrates features tailored to facilitate maternal-child health services, including anthropometric data recording, automated reminders for posyandu (integrated health posts), and educational modules. The application also includes a reporting system connected directly to relevant health authorities, enabling faster and more data-driven decision-making.

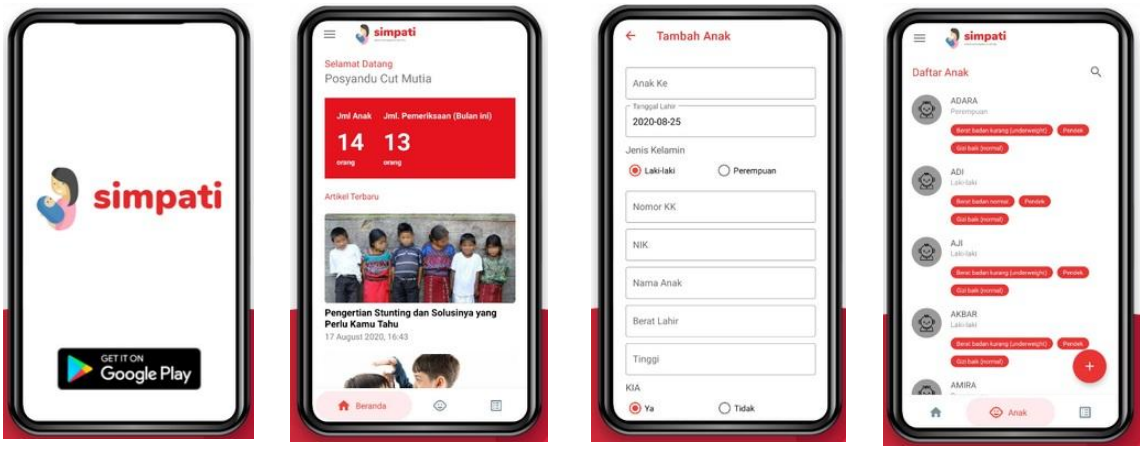

Figure 1. SIMPATI Application Interface

Sumber: https://simpati.app/

The development of SIMPATI represents a public-private collaboration, with the Sumedang Regency Government working alongside private sector partners such as Telkomsel. Functionally, the application offers comprehensive services, including child data logging, posyandu scheduling notifications, health education, and real-time reporting (Fabialismaya et al., 2025). These features not only facilitate data collection and service delivery but also empower posyandu cadres to enhance their capacity in offering accurate, timely, and data-informed services. Compared to traditional manual systems, SIMPATI delivers improvements in time efficiency, data accuracy, and cross-sectoral coordination.

Nevertheless, the successful implementation of SIMPATI hinges on several critical factors: the availability of reliable digital infrastructure, the level of digital literacy among users, the accessibility of devices, and the readiness of human resources to operate the

system effectively (Aprilia et al., 2023; Fabialismaya et al., 2025; Naufal Ali Husni, 2023). These contextual challenges must be addressed to ensure the sustainability and scalability of such digital solutions.

To better understand the transformation brought about by SIMPATI, Table 1 provides a comparative overview of several key indicators before and after the implementation of the application, highlighting measurable changes in service delivery, community participation, and child nutrition monitoring. This comparison serves to illustrate the extent to which SIMPATI has contributed to improving health outcomes and operational efficiency at the community level.

Table 1. Comparison Matrix Before and After the Use of SIMPATI

Aspect	Before SIMPATI	After SIMPATI
Data recording system	Manual, not real-time	Digital, integrated, and real-time
Access to child health data	Limited and slow	Fast and easily accessible
Mothers' participation in Posyandu	Fluctuating, low in several areas	Increased significantly since 2021
Nutritional interventions	Often delayed	Faster and data-driven
Cross-sector coordination	Unstructured	Integrated through the application

Source: Processed from field observations and documentation from the Sumedang District Health Office (2021–2024).

When compared with similar initiatives in other regions, SIMPATI demonstrates notable distinctions. For instance, Banyuwangi's *Smart Kampung* and Yogyakarta's *e-PPGBM* system also leverage digital platforms for health and nutrition monitoring. However, these programs tend to focus primarily on data collection and service integration at the village level (Ministry of Health of Indonesia, 2023; Saleh, 2023). In contrast, SIMPATI provides a more holistic approach, combining real-time data monitoring, community education, early warning systems, and multi-stakeholder coordination—all within a single application. These attributes make SIMPATI a compelling model for replication across districts seeking to modernize maternal and child health services through digital means.

A growing body of literature supports the critical role of technology in enhancing public health systems. (Jess Baker, 2020)showed that tech-based child health monitoring supports early detection and timely intervention. Kustiawan et al. (2022) found that digital applications could reduce stunting prevalence significantly within five years. Brusniak et

al. (2020); Kruse et al., (2019) reported increased maternal compliance in growth monitoring and nutrition provision through mobile health tools. In the Indonesian context, Farmani et al. (2021; Sugiarto et al. (2025) emphasized that digitalizing posyandu systems improves operational efficiency and reduces data entry errors.

A number of studies demonstrate that health apps can enhance access to accurate, real-time health information. For instance, Multazam et al. (2024) found that mobile health apps significantly improved public health awareness, including timely access to health-related guidance. Sari et al. (2024) showed that telemedicine frameworks improved access to real-time medical information in rural communities. Meanwhile, Jusril et al. (2020) reported that a digital platform for immunization monitoring in Indonesia enabled real-time data reporting, accelerating response to coverage gaps.

Other studies have shown that digital health platforms have a positive impact on nutrition monitoring and community behavior. Faza et al. (2022) explained that digital Posyandu applications are supported by local governments through the provision of devices and telecommunication signals to improve service efficiency. Agustina et al. (2022) reported that the EatsUp® application helps monitor balanced diets and increases nutritional awareness. (West et al., 2017) found that nutrition-related apps can trigger changes in eating behavior through education and motivation. (Piernas-Sanchez & Harmer, n.d.) demonstrated that gamification approaches and personalized messaging can enhance the effectiveness of mobile applications in shaping healthy habits. However, few studies have specifically assessed the effectiveness of SIMPATI, especially within the distinct socio-cultural and geographical context of Sumedang.

This gap in the literature leads to the central research question of this study: To what extent is the SIMPATI application effective in supporting stunting prevention in Sumedang Regency, particularly regarding implementation, user-perceived benefits, and its short-term impact on community participation and risk reduction?

To answer this, the study adopts a public policy evaluation framework, with the following objectives: 1) To evaluate the alignment between SIMPATI's implementation and its intended goals. 2) To identify the perceived benefits of SIMPATI from the perspective of health workers, posyandu cadres, and mothers. 3) To assess the application's impact on community engagement and the reduction of stunting risk. 4) To

provide data-driven recommendations for improving SIMPATI's quality and sustainability.

From a theoretical standpoint, this research contributes to discussions on digital health transformation and public policy evaluation in the context of developing countries. Practically, it delivers evidence-based insights for local governments and stakeholders aiming to optimize health innovation strategies. Furthermore, findings from this study can inform replication efforts in other regions, supporting the national target of reducing stunting to below 14% as outlined in the RPJMN (National Medium-Term Development Plan).

The novelty of this study lies in its comprehensive evaluative approach, examining not only the technical and operational dimensions of SIMPATI but also the social, political, and behavioral factors influencing its implementation. Using the Wirawan (2012) policy evaluation model, the study investigates three core elements: 1) Process: Is the program being implemented as intended? 2) Benefit: What real advantages do users experience? 3) Impact: Is there measurable change among the target population?

This multi-dimensional analysis enables the study to move beyond descriptive assessment and provide critical insights into the real-world effectiveness and adaptability of digital health interventions.

From a policy perspective, the results will offer practical guidance for improving SIMPATI's implementation and scaling it to other districts. Key success factors include adaptable digital infrastructure, local government support, trained personnel, and context-sensitive community engagement. SIMPATI's modular and integrative design positions it as a strategic asset in aligning local innovation with national health development goals. As Indonesia continues its digital transformation journey, programs like SIMPATI will play a pivotal role in ensuring inclusive, data-driven, and sustainable health services for all.

RESEARCH METHOD

This study employs a qualitative approach using a case study method to analyze the effectiveness of the SIMPATI application in the stunting prevention program in Sumedang Regency. A qualitative approach was chosen because it allows researchers to

explore in depth the experiences, perceptions, and challenges faced by stakeholders in the implementation of this application (Creswell, 2018; Yin, 2018). This research is descriptive in nature, aiming to understand the phenomenon of SIMPATI application usage within the local context of stunting prevention. Through this method, the study explores various aspects of implementation, benefits, and obstacles encountered during the use of the application. The research subjects include healthcare workers, *posyandu* (integrated health post) cadres, mothers of toddlers, and local government officials directly involved in the SIMPATI program. The study was conducted in several sub-districts within Sumedang Regency, selected based on relatively high stunting prevalence rates (Ministry of Health of the Republic of Indonesia, 2020).

Data collection techniques in this study include in-depth interviews, field observations, and documentation (Yin, 2018). In-depth interviews were conducted with healthcare workers, *posyandu* cadres, and mothers of toddlers to obtain firsthand insights into their experiences and perspectives regarding the use of the SIMPATI application in monitoring child nutrition and growth. The interviews were semi-structured to allow flexibility and enable researchers to explore broader and deeper information based on informants' responses. Field observations were conducted by directly observing the use of the application in real settings, including during *posyandu* activities and data-driven nutritional interventions. The study employed participatory observation techniques, in which researchers engaged in activities to gain a more contextual and holistic understanding (Chib, 2020; Spradley, 2015). Meanwhile, documentation involved the collection of relevant documents such as program evaluation reports, local policy documents, technical guidelines for application usage, and statistical data on SIMPATI's performance. Documentation served as a triangulation tool to validate and compare the data obtained from interviews and observations (Bowen, 2009).

Data analysis in this study followed several stages. First, all data from interviews and observations were transcribed verbatim. Second, the data were coded to group information into specific themes based on the research focus, such as implementation effectiveness, perceived benefits, and usage challenges. Third, the categorized data were analyzed thematically to interpret meanings and draw conclusions regarding the effectiveness of the SIMPATI application in stunting prevention (Miles, 2014).

To ensure data validity, this research applied source triangulation by comparing data obtained through interviews, observations, and documentation. In addition, member checking was conducted by returning interview summaries to key informants to verify the accuracy of the researchers' interpretations (Birt, 2016). Through this approach and methodology, the study is expected to provide a comprehensive overview of the effectiveness of the SIMPATI application in the stunting prevention program, as well as offer relevant recommendations for future development of digital technologies in the field of public health.

RESULT AND DISCUSSION

To evaluate the effectiveness of the SIMPATI application in stunting prevention in Sumedang Regency, this study adopts a comprehensive policy evaluation framework. This framework includes three main dimensions: process evaluation, benefit evaluation, and impact evaluation. The following is an in-depth discussion of the research findings based on these dimensions:

Process Evaluation

Process evaluation refers to the analysis of how a program is implemented, including whether it follows the initial design, the extent to which planned activities are delivered, and the readiness of resources and actors involved. According to (Wirawan, 2012), process evaluation assesses the implementation stage by examining the program's inputs, activities, and the mechanisms by which services are delivered. In the context of this study, process evaluation was applied to analyze the implementation of the SIMPATI (Integrated Nutrition Monitoring Information System) in Sumedang Regency.

Table 2. Research Results from the Dimension of Process Evaluation

No.	Indicator	Research Findings

1	Technological Readiness	Limitations of technological infrastructure, including internet network accessibility and the availability of adequate devices, especially in areas with limited technological access.
2	Digital Literacy	Digital literacy that is still low among health cadres and the community poses a challenge in optimizing the use of this system.

Source: Research Findings, 2025

Table 2 shows that, despite challenges related to infrastructure and digital literacy, SIMPATI has been successfully adopted in several areas of Sumedang Regency as a core tool for child nutrition monitoring. Health cadres reported that the application helped streamline the process of data collection, minimize manual errors, and enable real-time tracking of children's anthropometric measurements such as weight, height, and age. Healthcare workers also noted that SIMPATI reduced delays in data transmission from village-level services to the district health office, thereby improving the ability to detect early signs of malnutrition and enabling faster, more targeted interventions. The system's integration with community-based services like Posyandu has further strengthened local health service delivery. For instance, its reminder features for child weighing schedules, integration with immunization records, and visual representation of nutritional trends were considered highly beneficial by both cadres and parents. These findings align with (Afandi & Azizah, 2024), who emphasized that the digitalization of Posyandu systems contributes to improved operational efficiency and reduces inconsistencies in nutritional data.

However, the study also identified several persistent implementation barriers, particularly in terms of technological infrastructure and digital literacy. Field observations and interviews revealed that some villages—especially those located in highland or peripheral areas—continue to experience unstable internet connectivity and limited access to adequate digital devices. In some cases, Posyandu relied on mobile hotspots with weak signals, and frequent power outages further disrupted operations. As a result, cadres were sometimes forced to travel to sub-district centers to synchronize data, diminishing the benefits of real-time monitoring. These challenges reflect findings by Al Meslamani (2024) & Wasir et al. (2025), who argued that infrastructure readiness is a fundamental requirement for the effective deployment of digital health systems. Without reliable technological support, such systems risk becoming a burden rather than a solution for frontline health workers.

Another major obstacle concerns digital literacy. Many Posyandu cadres—particularly those in older age groups—struggled with basic smartphone operations, such as logging into the application, entering data accurately, or interpreting digital growth charts. Although initial training was provided during the rollout of SIMPATI, the lack of regular refresher sessions and limited user support contributed to inconsistent use of the system. These findings are consistent with Greenhalgh et al. (2017), who noted that technology adoption in health services depends not only on system design, but also on user readiness, capacity building, and continuous technical assistance. Furthermore, Kepper et al. (2024) emphasized that digital health tools require not only operational competence but also behavioral changes, which often demand culturally tailored strategies to shift long-standing habits and attitudes toward technology.

The successful implementation of SIMPATI also depends heavily on the roles and coordination of key stakeholders. The local government plays a strategic role in funding the required infrastructure, issuing technical guidelines, and ensuring institutional coordination. The support and commitment of government actors are essential to ensure the scalability and sustainability of the program. The District Health Office (Dinas Kesehatan Kabupaten) holds responsibility for program supervision, providing training for health cadres, and troubleshooting technical issues. The health office also ensures that data collected via SIMPATI aligns with the national nutrition surveillance standards. Posyandu cadres act as frontline users of the application; their competence, commitment, and familiarity with local contexts greatly influence the system's success. Since many cadres are unpaid volunteers, proper incentives and recognition mechanisms are essential to sustain their participation. Meanwhile, mothers of toddlers—who are the end-users of child health services—are expected to actively engage in the monitoring process. Their willingness to attend Posyandu sessions, respond to app notifications, and provide accurate child data significantly impacts the reliability and completeness of SIMPATI-generated information. These dynamics reflect World Health Organization and International Telecommunication Union (2012) framework that underscores the importance of multi-stakeholder collaboration, community involvement, and governance systems in the successful adoption of digital health interventions.

From both theoretical and practical perspectives, this study supports the argument that digital health platforms such as SIMPATI can enhance service delivery efficiency and data accuracy. Nevertheless, effective implementation requires more than just technological solutions; it demands enabling environments characterized by supportive policies, investment in infrastructure, continuous user training, and active community engagement. The findings in this study also reinforce the Technology Acceptance Model (TAM) proposed by Fred D. Davis (1989), which suggests that the perceived ease of use and perceived usefulness of a technology significantly influence its adoption. In this case, health cadres who perceived the system as too complex or who lacked confidence in using smartphones were more likely to avoid utilizing the application, even when they acknowledged its potential benefits. Therefore, any digital health strategy must prioritize not only system design and infrastructure but also human factors that affect user adoption and sustainability.

Benefit Evaluation

Benefit evaluation is a crucial dimension in determining the extent to which a program achieves its intended positive outcomes for stakeholders. In line with Wirawan (2012) evaluation framework, this dimension focuses on the outputs and outcomes produced by the program, particularly those related to service quality, efficiency, user satisfaction, and impact on beneficiary behavior. In the case of the SIMPATI (Integrated Posyandu Management Information System) implementation in Sumedang Regency, benefit evaluation provides insights into how the digital system contributes to improvements in child nutrition monitoring

Field data in table 3 show that SIMPATI has provided significant practical benefits for its users. Mothers of toddlers reported an increased awareness of the importance of tracking child nutrition indicators, particularly weight, height, and age. This awareness is supported by features such as notifications for check-up schedules and educational content accessible through the app. Health workers and Posyandu cadres also found that SIMPATI made data entry and reporting more convenient, reducing dependence on paper-based systems and minimizing the potential for human error.

Table 3. Research Results from the Dimension of Benefit Evaluation

No.	Indicator	Research Findings
1	Increased awareness of toddler mothers	Increased awareness of toddler mothers regarding the importance of child health monitoring has improved.
2	Ease for health workers and posyandu cadres in data recording and monitoring	The ease for health workers and posyandu cadres in data recording and monitoring has improved.
3	Recording efficiency	The efficiency of recording nutritional and child health data has improved.
4	Data access	Data access has become faster.

Source: Research Findings, 2025

The improvement in data access speed is another highlight of SIMPATI's benefits. Healthcare staff noted that they could retrieve individual health records and analyze growth trends more quickly, enabling more timely interventions for children at risk of stunting. This capability aligns with digital health benefits documented in previous studies. For instance, Setiawan & Gazali (n.d.) found that digital Posyandu information systems reduce recording errors and increase service efficiency. Similarly, Arief Prambudi et al. (2024) emphasized that digitalization enhances monitoring effectiveness at the community health level.

Liu et al. (2025) also highlighted that digital health interventions can improve the accuracy and efficiency of maternal and child health data management. Chib (2020) emphasized how mobile health apps help mothers interpret their child's nutritional status, while Curioso et al. (2005) showed that mobile technology contributes to better public health program outcomes.

Recent research by Mohamed et al., (2025) demonstrated that digital tools encourage parental engagement in child health monitoring, and a UNICEF (2025) report confirmed that community access and participation in health services are enhanced through digital innovations. Smith (2023) concluded that e-Health systems lead to more effective nutrition monitoring and reductions in malnutrition, and Hojati et al. (2023) observed improved service quality in early childhood development as a result of digital system implementation.

These findings reinforce the theoretical foundation of benefit evaluation, which emphasizes the importance of achieving meaningful outputs and positive impacts for all stakeholders involved in a program. In the context of SIMPATI implementation, various field-based evidence demonstrates that the application has delivered tangible and measurable benefits to all key actors directly engaged in the system—namely, mothers of

toddlers as service recipients, *posyandu* cadres as frontline implementers, and healthcare professionals as responsible agents for monitoring and decision-making. The program not only enhances the quality of public health services in maternal and child care but also promotes active user participation and strengthens data-driven decision-making practices. SIMPATI provides faster and more accurate access to child growth information, enabling earlier and more targeted interventions for children at risk of malnutrition or stunting.

In conclusion, benefit evaluation confirms that SIMPATI delivers essential value in public health service innovation. With sustained support and strategic development, this platform has the potential to contribute significantly to national stunting prevention goals.

Impact Evaluation

Impact evaluation aims to assess the extent to which the SIMPATI program has influenced the community, particularly in increasing the participation of mothers of toddlers in *posyandu* (integrated health service posts) activities and reducing the number of children at risk of stunting. This evaluation focuses on measurable changes that result directly or indirectly from the program's implementation.

Table 4. Research Results from the Dimension of Impact Evaluation

No.	Indicator	Research Findings
1	Participation of toddler mothers in posyandu activities	Participation of toddler mothers in posyandu activities experienced a significant increase after the implementation of SIMPATI.
2	Number of children at risk of stunting	The number of children at risk of stunting experienced a decrease after the implementation of SIMPATI.

Source: Research Findings, 2025

Table 4 shows that despite certain challenges related to technological and infrastructure adoption, the implementation of SIMPATI in several districts of Sumedang Regency has demonstrated tangible impacts, including higher community engagement and earlier nutritional interventions. One of the most prominent outcomes is the rise in participation of mothers of toddlers in *posyandu* activities. Prior to the implementation of SIMPATI, attendance rates averaged around 60%. Within six months of its implementation, this figure rose to 85%.

This improvement aligns with Hagger & Hamilton (2025) Theory of Planned Behavior, which posits that behavioral intention is influenced by individual attitudes, subjective norms, and perceived behavioral control. In this context, features such as appointment reminders, growth visualization tools, and user-friendly interfaces in the SIMPATI application have effectively increased mothers' awareness and motivation to participate in *posyandu*. This finding is further supported by Notoatmodjo (2020), who emphasizes that education-based interventions and improved access to health information significantly enhance individual compliance with healthy behaviors.

In addition to improving participation, the SIMPATI program has contributed to a reduction in the number of children at risk of stunting. Before its implementation, the prevalence of children in the risk category stood at 12,05%, which decreased to 7,32%% after five years of program implementation. This decline reinforces SIMPATI's contribution to the broader reduction of stunting prevalence in Sumedang Regency. According to updated local health data, the prevalence of stunting among children aged 0–23 months was 12.05% in 2020, decreased to 10.99% in 2021, and dropped further to 8.27% in 2022. Although the figure 2 slightly rose to 7.89% in 2023, the downward trend continued in 2024, reaching 7.32%. This downward trajectory reflects a consistent and sustainable trend, indicating the impact of technology-based interventions such as SIMPATI in strengthening real-time growth monitoring systems and enabling faster responses to malnutrition and stunting cases.

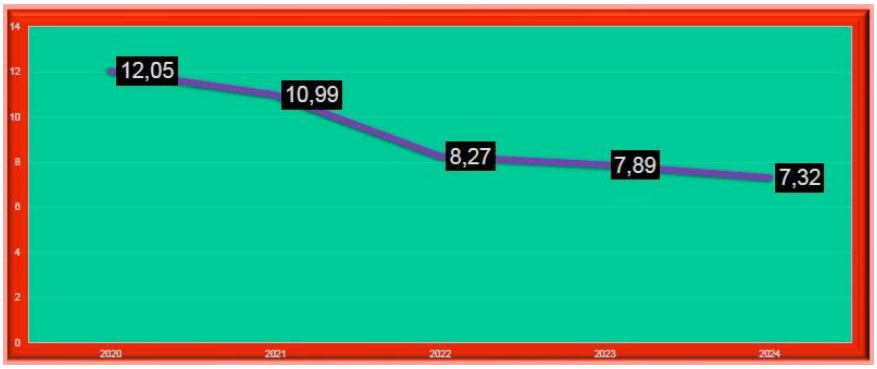

Figure 2. Trends in Stunting Prevalence Among Children Aged 0–56 Months in Sumedang Regency, 2020–2024

Sources: Sumedang District Health Office, 2024

These outcomes suggest that SIMPATI's real-time growth monitoring features and its more structured follow-up mechanisms contribute significantly to more targeted

interventions for children in need. The digital features of the system facilitate early identification of stunting risk, speed up referrals, and strengthen tiered reporting and response systems. This finding is consistent with Bronfenbrenner's Social Ecological Theory, which asserts that a child's health is shaped by the interplay between individual, familial, community, and healthcare system factors (Olivia Guy-Evans, 2025). SIMPATI enhances the synergy among these actors through digital means, enabling more responsive and coordinated cross-sector efforts to address nutritional challenges.

Moreover, the application's capacity to accurately record anthropometric data and display child growth trends visually has proven to be highly useful for both *posyandu* cadres and parents. Real-time information allows parents to better understand their child's development while enabling cadres to respond promptly to deviations from healthy growth patterns. A study by Dewey & Adu-Afarwuah (2008) confirms that consistent growth monitoring, when combined with nutrition education, can significantly reduce stunting prevalence, especially in early childhood. Therefore, the integration of digitafigure l recording and data-driven education via SIMPATI adds substantial value to stunting prevention efforts.

Nonetheless, despite these encouraging initial results, the program's long-term sustainability remains a central challenge. Success over time relies heavily on consistent program implementation, infrastructure maintenance, and active community participation. In some areas, limitations such as the shortage of digitally literate *posyandu* cadres, lack of ongoing digital training, and socio-economic barriers affecting mothers' participation in child health services continue to persist. These gaps highlight the critical need for systematic support in human resource capacity and community empowerment. Rogers et al. (2019) Diffusion of Innovations Theory supports this notion, asserting that the adoption of new programs depends not only on technological advantages but also on policy support, local capacity development, and cultural compatibility.

To enhance the effectiveness and sustainability of SIMPATI, a range of strategic measures should be undertaken. Strengthening digital health education using accessible, interactive, and contextually relevant content is key to fostering greater health awareness. Improving cadre capacity through regular training and adequate incentives will encourage greater engagement. Additionally, program sustainability should be

backed by regional policies that ensure both regulatory and budgetary support. Complementary interventions, such as providing nutritious food assistance to at-risk families, should also be considered. Equally important is the active involvement of the community—through local leaders, mother support groups, and grassroots organizations—to build a culture of nutritional awareness from the ground up.

By addressing both technical and social aspects holistically, SIMPATI serves not only as a digital data recording tool but also as a driver of social change in stunting prevention efforts. Ongoing support from all stakeholders is essential for SIMPATI to continue evolving and serve as a best practice model that can be replicated in other regions across Indonesia.

CONCLUSION

This study examines the effectiveness of the SIMPATI application as a digital innovation in supporting stunting prevention efforts in Sumedang Regency. The research uses a comprehensive policy evaluation approach, covering the dimensions of process, benefit, and impact. The findings indicate that SIMPATI has made a positive contribution by improving the monitoring of child nutritional status, raising maternal awareness about child health, and accelerating data recording and service delivery at the community level.

From a process evaluation perspective, the application has facilitated real-time anthropometric data recording and strengthened coordination among health service providers, although challenges such as limited infrastructure and low digital literacy remain in some areas. In terms of benefits, the system helps both mothers and health workers to better understand and respond to children's nutritional conditions through accessible digital features. From the impact perspective, SIMPATI has been proven to increase maternal participation in *posyandu* activities and reduce the number of children at risk of stunting during the first six months of implementation.

Although the initial results are promising, this study also highlights key challenges related to infrastructure readiness, human resource capacity, and sociocultural acceptance. To ensure long-term sustainability, improvements in digital infrastructure, ongoing training for users, and strengthened community empowerment strategies are required. SIMPATI's integrated and user-centered design shows strong potential for

replication and scaling up—not only in West Java, but also in other regions across Indonesia.

This research provides evidence-based insights for policymakers, local governments, and health practitioners seeking to enhance digital health interventions in maternal and child health. SIMPATI represents a promising local innovation that can align with national strategies for accelerating stunting reduction and building a healthier future generation in Indonesia.

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