

The Effectiveness of SIMENIK (Electronic Media System) in Stunting Reduction Efforts in Pitu District, Ngawi Regency

Puji Astuti ^{1*}, Veny Ari Sejati ², Maria Magdalena Widiantri ³

^{1*,2,3} Communication Science Study Program, Faculty of Social and Political Sciences, Universitas Merdeka Madiun, Madiun City, East Java Province, Indonesia

Email: pujialya5@gmail.com ^{1*}, veny_ar@unmer-madiun.ac.id ², mariamagdalena@unmer-madiun.ac.id ³

Article history:

Received July 1, 2026

Revised August 2, 2026

Accepted August 10, 2026

Abstract

Stunting is a serious public health issue in Indonesia, including in Pitu Subdistrict, Ngawi Regency. Stunting is caused by multifactorial factors, such as chronic malnutrition, recurrent infections, poor sanitation, and low parental knowledge about child nutrition (Beal et al., n.d.). Ministry of Health of the Republic of Indonesia, 2022). One approach to address stunting is the utilization of information technology, such as SIMENIK (Electronic Media System), which is designed to disseminate health information, monitor child nutritional status, and support community nutrition interventions (World Health Organization, n.d.). This study aims to analyze the effectiveness of SIMENIK in supporting stunting reduction in Pitu Subdistrict, Ngawi Regency, focusing on information accessibility, system usage by health workers, and its impact on community knowledge regarding child nutrition and growth. This research employs a descriptive qualitative approach, with data collected through in-depth interviews with health workers, posyandu cadres, and selected parents of toddlers, as well as observations of SIMENIK usage in the field. The results are expected to provide insights into the extent to which SIMENIK can improve access to nutrition information, support health workers' decision-making, and influence community behavior in fulfilling child nutritional needs. This study is expected to serve as a recommendation for local governments and stakeholders to strengthen the implementation of SIMENIK, enhance nutrition education quality, and accelerate stunting reduction in Pitu Subdistrict (U.N.I.C.E.F., n.d.).

Keywords:

Stunting; SIMENIK; Electronic Media System; Effectiveness; Pitu Subdistrict; Ngawi Regency.

1. INTRODUCTION

Stunting is a condition of impaired growth in children caused by chronic undernutrition and recurrent infections, particularly during the first 1,000 days of life, from pregnancy until a child reaches 23 months of age. A child is classified as stunted when their length or height is more than two standard deviations below the median of the World Health Organization (WHO) Child Growth Standards for children of the same age. Stunting not only hinders physical growth but also increases susceptibility to disease but also impairs cognitive development, ultimately affecting intellectual capacity, productivity, and the quality of human resources in the future (Kementrian Kesehatan Republik Indonesia, 2018).

Stunting remains one of the major public health challenges and a national development priority in Indonesia. According to the Indonesia Health Profile 2024, the national prevalence of stunting was 19.8% (Kemenkes, RI, 2025). At the provincial level, the prevalence of stunting in East Java, based on the 2024 Indonesian Nutritional Status Survey (SSGI), declined to 6.10%, making it the province with the lowest stunting prevalence on the island of Java. Meanwhile, the stunting prevalence in Ngawi Regency was recorded at 11.4% in 2024, indicating that efforts to accelerate stunting reduction still need to be strengthened through various effective intervention strategies.

The Indonesian government's commitment to accelerating stunting reduction is outlined in the National Long Term Development Plan (RPJPN) 2025–2045, which targets a reduction in the national stunting

prevalence to 14.4% by 2029 and 5% by 2045. To implement this policy, the government enacted Presidential Regulation No. 72 of 2021 on the Acceleration of Stunting Reduction, designating the National Population and Family Planning Agency (BKKBN) as the coordinating agency for national stunting reduction efforts. One of the key strategies is the establishment of Family Assistance Teams (Tim Pendamping Keluarga/TPK), consisting of midwives, Family Welfare Empowerment (PKK) cadres, and family planning (KB) cadres. These teams provide assistance to target families through health education, referral services, facilitation of access to social assistance, and continuous monitoring to enable the early detection of stunting risk factors (Susanti & Banuwa, n.d.).

The establishment of Family Assistance Teams (TPK) represents a community empowerment initiative to support the acceleration of stunting reduction. TPK cadres play a strategic role in assisting prospective brides and grooms, pregnant women, postpartum mothers, infants, and children under five through health education, health monitoring, and the promotion of healthy family behaviors. However, the effective implementation of these responsibilities requires adequate resources, including communication media that can enhance the delivery of health information and improve public access to accurate and timely information (Nurmayani et al., n.d.).

In efforts to promote community behavior change, communication is a key component in the success of stunting prevention programs. Communication, Information, and Education (CIE) strategies have been shown to improve family knowledge and awareness regarding stunting prevention. With the rapid advancement of information technology, the use of digital media has emerged as a more effective alternative, as it enables broader community outreach, enhances the appeal of health messages, and encourages greater public participation in health promotion programs (Ramadhani & Sari, n.d.).

SIMENIK is an electronic media-based health communication innovation developed to support the responsibilities of Family Assistance Team (TPK) cadres by providing educational materials in the form of animated videos. Unlike conventional printed media, SIMENIK delivers health information in a more visual, engaging, and easily understandable format for diverse target audiences. The use of audiovisual media also provides greater flexibility for TPK cadres to tailor educational content to the specific needs of families, thereby making the communication process more effective, interactive, and participatory. Based on preliminary interviews with Family Assistance Team (TPK) cadres in Pitu Subdistrict, Ngawi Regency, the available Communication, Information, and Education (CIE) media were found to be limited. Health education activities have primarily been delivered through verbal counseling or printed leaflets and posters, which are limited in quantity, less engaging, and not fully aligned with the characteristics of the target audience, particularly young families who are more familiar with digital media. In response to these challenges, the Family Planning Extension Center (Balai Penyuluh KB) of Pitu Subdistrict developed an innovative communication tool called SIMENIK (Electronic Media System), a video animation-based CIE platform containing educational materials on stunting prevention, reproductive health, child rearing practices, and family planning.

Animated videos offer significant advantages by presenting educational content through a combination of visuals, audio, text, and animation, thereby enhancing audience engagement, comprehension, and information retention (Nurmayani et al., n.d.). Furthermore, this media is flexible and can be utilized in various family assistance activities, including home visits, maternal classes, Bina Keluarga Balita (BKB) sessions, and posyandu services, without relying on the presence of specific resource persons. Therefore, SIMENIK has the potential to serve as an effective supporting tool that enhances the quality of health information delivered by Family Assistance Team (TPK) cadres to target families. Nevertheless, the implementation of SIMENIK in Pitu Subdistrict is still in its early stages, and its utilization has not yet been fully optimized. Although some TPK cadres have adopted the system and reported increased community interest in participating in health education activities, no comprehensive scientific study has yet evaluated the effectiveness of SIMENIK in supporting the responsibilities of Family Assistance Team (TPK) cadres and its contribution to strengthening their role in stunting reduction efforts. The effectiveness of an innovation depends not only on the existence of the system itself but also on its suitability to users' needs, the availability of supporting resources, the quality of its implementation, and its impact on achieving program objectives.

This study offers a novel contribution by extending beyond the examination of digital media as a health education tool to evaluate the effectiveness of SIMENIK in strengthening the role of Family Assistance Team (TPK) cadres in implementing village level stunting reduction programs. The effectiveness of SIMENIK is comprehensively assessed through the quality of its educational content, system usability, cadres' experiences in delivering health education, perceptions of the media's effectiveness, and the enabling and constraining factors affecting its implementation. Therefore, this study is expected to contribute to the advancement of digital health communication innovations that support stunting reduction programs. Based on the foregoing, this study is essential to analyze the effectiveness of SIMENIK implementation in strengthening the role of Family Assistance Team (TPK) cadres in stunting reduction efforts in Pitu Subdistrict, Ngawi Regency. The findings are expected to contribute to the advancement of health communication and public administration, particularly in the application of digital media as a communication strategy for public health programs. Furthermore, the results are anticipated to provide valuable evaluation and policy recommendations for local governments and relevant stakeholders in developing digital health communication innovations to support the sustainable acceleration of stunting reduction.

In addition, this study is expected to provide empirical evidence regarding the integration of digital communication technology into community-based health interventions, particularly in rural settings where access to health information and education remains limited. By examining the implementation of SIMENIK from the perspectives of Family Assistance Team (TPK) cadres, this research aims to enrich the existing literature on digital health communication, community empowerment, and collaborative governance in public health. Ultimately, the findings are expected to serve as a reference for future studies and support the development of more effective, accessible, and sustainable digital communication strategies to improve maternal and child health outcomes and strengthen national stunting reduction initiatives.

2. RESEARCH METHOD

The study was conducted in the service area of the Family Planning Extension Center (Balai Penyuluh KB) in Pitu Subdistrict, Ngawi Regency, East Java, from January to March 2026. The participants consisted of TPK cadres selected through purposive sampling based on the following criteria: active service for at least six months, prior experience using SIMENIK, and willingness to participate in the study. The number of participants was determined using the principle of data saturation, whereby data collection continued until no new information emerged. The focus of the study was the effectiveness of SIMENIK as an educational medium in enhancing the role of TPK cadres. The aspects examined included system usability, the quality of educational content, its usefulness in health education activities, and the enabling and constraining factors influencing its utilization.

Data were collected through in-depth interviews, non participant observations, and document analysis. In depth interviews were conducted to explore the cadres' experiences and perceptions regarding the use of SIMENIK. Non participant observations were undertaken to examine the implementation of SIMENIK during health education activities, while document analysis was used to complement the findings through educational materials, activity reports, and other supporting documents. Data were analyzed using the interactive model developed by Miles and Huberman, which consists of data reduction, data display, and conclusion drawing. The trustworthiness of the findings was established through source triangulation and methodological triangulation by comparing evidence obtained from interviews, observations, and document analysis. The findings are presented narratively according to the themes that emerged from the data and are supported by participants quotations and tables where appropriate.

3. RESULTS AND DISCUSSION

Table 1. Characteristics of the Participants

Participant Code	Age (Years)	Education	Years of Service as a TPK Cadre	Experience Using SIMENIK
IU1	43	Senior High School	5 years	1.5 years
IU2	37	Senior High School	5 years	1.5 years
IU3	35	Senior High School	5 years	1.5 years
IU4	3	Senior High School	5 years	1.5 years
IU5	38	Senior High School	5 years	1.5 years
IU6	37	Senior High School	5 years	1.5 years
IU7	36	Senior High School	5 years	1.5 years
IU8	39	Senior High School	5 years	1.5 years
IU9	37	Senior High School	6 years	1.5 years
IU10	36	Senior High School	6 years	1.5 years

The interview findings indicated that most participants perceived the educational content provided by SIMENIK as comprehensive, well-structured, and relevant to the needs of Family Assistance Team (TPK) cadres in delivering health education to target families. The available materials cover a wide range of essential topics, including stunting, anemia, the First 1,000 Days of Life (First 1,000 Days/1,000 HPK), reproductive health, and child-rearing practices. One participant (IU1) stated: "The content is very comprehensive. It covers all the major topics needed by cadres, such as stunting, anemia, the first 1,000 days of life, and reproductive health." A similar opinion was expressed by another participant (IU3): "The materials are comprehensive and well organized. Each topic explains the definition, causes, impacts, and preventive measures in a clear sequence." Observational findings further showed that TPK cadres consistently used the educational materials available in SIMENIK during health education sessions, and the content delivered was appropriate to the educational needs of the target families. These findings suggest that the quality of educational content is a critical component of effective health communication and supports the implementation of community-based stunting prevention programs. According to (Schiavo, 2023), health messages that are clear, comprehensive, and relevant enhance the public's understanding of the information being communicated. This finding is

consistent with (Lasswell, 1948), communication theory, which emphasizes that the effectiveness of communication is influenced by the quality of the message, the medium through which it is delivered, and its impact on the audience. The standardized educational content provided by SIMENIK also helps ensure consistency in the information delivered by TPK cadres, thereby minimizing variations in health messages across different community settings. The findings further indicate that the digitalization of educational media has enhanced the competencies of TPK cadres in conducting health education activities. Before adopting SIMENIK, cadres relied primarily on verbal explanations, making the quality and completeness of information dependent on each individual's experience and communication skills. Following the implementation of SIMENIK, educational sessions became more systematic, easier for families to understand, and more engaging through the use of visual and audiovisual content. These findings suggest that digital media not only improve the quality and consistency of educational materials but also strengthen the professionalism and effectiveness of TPK cadres in delivering community health education.

In addition to facilitating the delivery of health information, the standardized educational content available in SIMENIK plays an important role in maintaining the quality and consistency of education provided by TPK cadres. The systematically organized materials enable each cadre to communicate the same core messages, thereby reducing the likelihood of inconsistencies in interpretation or message delivery to target families. Such consistency is essential to ensure that all families receive accurate and reliable information on stunting prevention, including adequate nutrition, reproductive health, and the importance of the First 1,000 Days of Life (1,000 HPK). The findings of this study are consistent with those of (Kurniasari et al., 2024), who reported that audiovisual media improve the quality of health information delivered by community health cadres. Therefore, SIMENIK functions not only as a digital educational platform but also as a tool for enhancing the quality of health communication in stunting prevention efforts.

3.1. System Usability

Most participants reported that SIMENIK was easy to access and operate using their personal smartphones because of its simple interface and user-friendly navigation. One participant (IU1) stated: "It is very easy to access. I can open it on my personal smartphone as long as there is an internet connection." However, another participant (IU8) highlighted challenges when using the application in areas with unstable internet connectivity: "It is somewhat difficult to use in areas with poor network coverage, but it works well when I am at the community health center or the village office." Observational findings showed that eight of the ten health education sessions proceeded smoothly, whereas two sessions experienced delays due to limited internet connectivity. These findings indicate that SIMENIK demonstrates a high level of usability, thereby supporting TPK cadres in conducting health education activities. This result is consistent with the concept of perceived ease of use proposed in the Technology Acceptance Model (Davis, 1989), which suggests that technologies perceived as easy to use are more likely to be accepted and continuously adopted by users. Nevertheless, internet connectivity remains a significant challenge to the effective implementation of SIMENIK, particularly in rural areas. The findings further suggest that ease of use alone does not guarantee the successful implementation of SIMENIK. Limited internet access in certain locations continues to hinder uninterrupted access to educational videos, indicating that the success of digital health innovations depends not only on the quality of the application but also on the availability of adequate technological infrastructure. Therefore, future development of SIMENIK should incorporate an offline mode to ensure that educational content remains accessible in areas with limited or unreliable internet connectivity. These findings are also consistent with those reported by (Sujarwoto et al., 2025), who emphasized that the successful implementation of digital health technologies is strongly influenced by the readiness of supporting digital infrastructure.

3.2. Counseling Experience and the Transformation of the Cadres' Role

Most participants reported that the use of SIMENIK improved the quality of health education activities because the educational materials were presented through animated videos, making the information more engaging and easier to understand than conventional verbal explanations.

One participant (IU1) stated: "The animated videos make the explanations more interesting and easier for community members to understand than simply giving verbal explanations." Similarly, another participant (IU6) commented: "It helps shorten the duration of health education sessions because the key messages are already presented clearly in the videos."

Observational findings further revealed that target families became more actively engaged after watching the educational videos presented by the cadres. Participants were more likely to ask questions, express opinions, and discuss issues related to child nutrition, reproductive health, and stunting prevention than during conventional counseling sessions. The audiovisual presentation of information appeared to stimulate greater curiosity and encourage two-way communication between cadres and families, creating a more dynamic and participatory learning environment. The findings indicate that the adoption of SIMENIK has transformed the communication approach of TPK cadres from a predominantly lecture based model to a more interactive, participatory, and learner centered approach. Rather than serving solely as information providers, cadres increasingly function as facilitators of learning by guiding discussions, responding to questions, clarifying misconceptions, and encouraging families to actively participate in the educational process. This

transformation strengthens interpersonal communication between cadres and community members, which is widely recognized as a key determinant of the effectiveness of community-based health promotion programs.

Furthermore, the use of SIMENIK enables cadres to deliver health education in a more structured and consistent manner while reducing dependence on individual communication skills. The standardized audiovisual materials ensure that essential health messages are communicated accurately and comprehensively across different counseling sessions. Consequently, cadres can devote more attention to facilitating discussion, addressing the specific concerns of each family, and providing personalized guidance based on the participants' needs. This shift contributes not only to greater efficiency during counseling sessions but also to improved comprehension and retention of health information among community members.

These findings are consistent with the perspective of (Schiavo, 2023), who argues that contemporary health communication extends beyond the one-way dissemination of information and should actively promote dialogue, participation, and community engagement. Audiovisual media enhance attention, comprehension, and audience involvement by combining visual and auditory elements that simplify complex health concepts. As a result, educational messages become easier to understand, more memorable, and more likely to encourage positive behavioral change. In the context of stunting prevention, this interactive communication process strengthens the capacity of TPK cadres to empower families, support informed decision-making, and foster sustainable health behaviors that contribute to improved maternal and child health outcomes.

3.3. Perceived Effectiveness of SIMENIK

Most participants perceived SIMENIK as an effective tool for supporting their responsibilities as members of the Family Assistance Team (TPK). One participant (IU2) stated: "The standardized materials make the information delivered more consistent and accurate." Similarly, another participant (IU10) remarked: "It has greatly improved the overall quality of TPK cadres' performance." Observational findings also demonstrated increased interaction between TPK cadres and target families during health education sessions. Families were more actively involved in discussions, asked more questions, and showed greater enthusiasm when educational materials were delivered through SIMENIK. The audiovisual format encouraged active participation and facilitated a more interactive learning environment, enabling cadres to communicate health messages more effectively than through conventional lecture-based approaches. The findings indicate that the effectiveness of SIMENIK extends beyond its function as a digital educational platform. Its effectiveness is reflected in improvements in the quality of educational delivery, greater family participation during counseling activities, increased confidence among TPK cadres, and more effective communication between cadres and community members. The availability of standardized educational materials also ensures consistency in the information delivered, thereby reducing variations in message interpretation and promoting a more uniform understanding of stunting prevention across different target groups.

These findings are consistent with the framework proposed by (Budiani, 2009), which suggests that program effectiveness can be evaluated based on target accuracy, goal achievement, and the benefits perceived by users. Viewed from these indicators, SIMENIK has demonstrated tangible benefits for both TPK cadres and target families in supporting community-based stunting prevention activities. The application has enabled cadres to deliver educational content more systematically while simultaneously increasing community engagement throughout the counseling process. From the perspective of the target families, SIMENIK provides a more engaging and meaningful learning experience because health information is conveyed through a combination of visual images, narration, text, and animation rather than through verbal explanations alone. This multimedia approach facilitates better comprehension of complex health concepts, improves information retention, and increases the likelihood that families will remember and apply recommended health practices in their daily lives. Consequently, educational sessions become not only more informative but also more enjoyable and accessible to audiences with diverse educational backgrounds.

Another important finding is that SIMENIK contributes to strengthening the credibility and professionalism of TPK cadres. The availability of standardized, evidence-based educational materials enhances cadres' confidence in delivering health information and reduces concerns about providing incomplete or inconsistent messages. As a result, cadres are better equipped to facilitate discussions, respond to participants' questions, and provide accurate explanations regarding nutrition, reproductive health, child care, and stunting prevention. This enhanced confidence ultimately improves the quality of interpersonal communication and reinforces the cadres' role as trusted community health educators. Overall, the findings suggest that the effectiveness of SIMENIK should not be assessed solely in terms of its technical performance as a digital application, but also in terms of its contribution to improving the quality of health communication, strengthening the capacity of community health cadres, fostering active community participation, and supporting behavioral changes that are essential for sustainable stunting prevention. These results demonstrate that digital health communication innovations can serve as strategic tools for enhancing the implementation and impact of community based public health programs.

3.4. Supporting and Inhibiting Factors

The findings of this study indicate that several factors support the successful implementation of SIMENIK. The most frequently reported strengths include its comprehensive educational content, simple and

user-friendly interface, easily understandable language, and the use of engaging audiovisual materials. These characteristics enable TPK cadres to access educational resources efficiently and deliver health information in a more organized and attractive manner. One participant (IU4) explained: "The materials are organized by topic, making it easy to find the appropriate content for each health education session." The observational findings confirmed that cadres were able to navigate the application without significant difficulties and could quickly identify educational materials that matched the needs of target families. The systematic organization of content reduced preparation time before counseling sessions and improved the overall efficiency of health education activities. Despite these advantages, several barriers to the implementation of SIMENIK were also identified. The primary challenge reported by participants was the application's dependence on internet connectivity and the absence of an offline access feature. One participant (IU1) stated: "The application depends heavily on an internet connection. When the signal is weak, the videos load slowly or cannot be accessed at all." Another participant (IU2) added: "There is no option to download the educational materials, so we always need an internet connection to use the application."

These findings indicate that technical infrastructure remains one of the most significant determinants of successful digital health implementation. Although SIMENIK has been designed with a simple and user-friendly interface, its effectiveness may be substantially reduced in rural areas where internet coverage is unstable. Consequently, the potential benefits of digital health innovations cannot be fully realized without adequate technological infrastructure that ensures equitable access for all users. Participants therefore recommended the development of an offline mode that would allow educational videos to be downloaded and accessed without an internet connection. They also suggested the inclusion of regional language options to improve communication with families who have limited proficiency in the Indonesian language. Such improvements would increase the accessibility and inclusiveness of SIMENIK while enabling cadres to deliver health education more effectively across diverse sociocultural settings. These findings support the recommendations of the World Health Organization, which emphasize that successful digital health implementation requires not only innovative technological solutions but also adequate digital infrastructure, equitable access to technology, and sufficient digital literacy among both health workers and communities.

Without these supporting elements, the effectiveness and sustainability of digital health interventions may be considerably constrained. In addition to technological infrastructure, digital literacy among TPK cadres emerged as another important factor influencing the implementation of SIMENIK. Although most participants were able to operate the application effectively, several cadres reported requiring additional assistance to fully utilize all available features. This finding suggests that the successful adoption of digital health innovations depends not only on the quality of the technology itself but also on users' competencies and confidence in using digital tools. Regular training, technical assistance, and continuous capacity building programs are therefore essential to ensure that all cadres can maximize the benefits offered by SIMENIK. Furthermore, continuous mentoring and periodic evaluation should accompany the implementation of SIMENIK to identify emerging challenges and improve system performance over time. Establishing mechanisms for user feedback would enable developers and policymakers to refine the application according to the practical needs of cadres working in different community settings. Such an adaptive approach would contribute to the long-term sustainability of digital health innovations within community-based health programs.

Overall, the findings demonstrate that the successful implementation of SIMENIK depends not only on the quality of the application and its educational content but also on the availability of supporting technological infrastructure, the digital competencies of users, institutional commitment, and sustained policy support from local governments. Strengthening these complementary factors will enhance the effectiveness of SIMENIK and increase its potential for broader implementation in community health programs. The present study further demonstrates that the utilization of SIMENIK contributes positively to the implementation of stunting reduction programs by strengthening health communication at the community level. The application enables TPK cadres to deliver educational messages in a more engaging, systematic, and understandable manner, thereby improving communication between health workers and target families. Enhanced communication may increase community knowledge regarding stunting prevention, encourage healthier behavioral practices, and ultimately contribute to improved maternal and child health outcomes.

One of the key findings of this study is that the quality of educational content represents a fundamental determinant of the effectiveness of health education delivered by TPK cadres. Comprehensive, standardized, and evidence based educational materials not only enhance cadres' confidence during counseling sessions but also ensure that target families receive accurate, consistent, and scientifically valid information regarding nutrition, reproductive health, child care, and the importance of the First 1,000 Days of Life. Consistency in health messaging is particularly important because it minimizes misinformation and promotes uniform understanding among community members.

Beyond its benefits for TPK cadres, the implementation of SIMENIK also represents an important innovation in public service delivery within the health sector. The integration of digital technology into community health communication demonstrates how digital transformation can improve the accessibility, efficiency, and quality of public health services. This innovation supports government initiatives to modernize health promotion strategies while strengthening community participation in disease prevention and health promotion programs. The findings also suggest broader implications for public administration and health

policy. Local governments may consider integrating SIMENIK into existing maternal and child health programs and expanding its implementation through collaboration with community health centers, village administrations, and other relevant stakeholders. Such integration would facilitate more standardized health communication while improving coordination among institutions involved in stunting prevention initiatives. Finally, considering its positive contribution to health education and community engagement, SIMENIK has considerable potential to serve as a model for community based digital health communication that can be adapted and replicated in other regions with similar demographic and geographical characteristics. Future research may further evaluate its long-term impact on changes in community knowledge, health behaviors, and stunting prevalence using mixed-methods or longitudinal research designs. Such studies would provide stronger empirical evidence regarding the effectiveness and sustainability of digital health innovations in supporting national stunting reduction strategies.

Overall, the findings of this study demonstrate that the integration of digital technology into community-based health communication has substantial potential to strengthen stunting prevention efforts. SIMENIK not only facilitates the dissemination of standardized and evidence-based health information but also enhances the capacity of TPK cadres to deliver more effective, interactive, and family centered health education. The successful implementation of SIMENIK illustrates that digital health innovations can improve both the quality of communication and community engagement when supported by adequate infrastructure, user competencies, and institutional commitment. These findings contribute to the growing body of evidence on digital health communication and highlight the importance of integrating technological innovation with community empowerment strategies to achieve sustainable improvements in maternal and child health outcomes and accelerate national stunting reduction programs.

4. CONCLUSION

This study demonstrates that SIMENIK is an effective Communication, Information, and Education (CIE) medium for supporting the implementation of Family Assistance Team (TPK) activities in stunting reduction efforts in Pitu Subdistrict, Ngawi Regency. Its effectiveness is reflected in the availability of comprehensive, well-structured, and relevant educational materials covering key topics such as stunting, anemia, reproductive health, maternal nutrition, and the First 1,000 Days of Life (1,000 HPK). The standardized content enables TPK cadres to deliver health information accurately, consistently, and in a manner that is easily understood by target families. In addition, the use of animated audiovisual content enhances the quality of health communication by making educational sessions more engaging, interactive, and effective than conventional lecture-based approaches.

The findings further indicate that SIMENIK has contributed to transforming the role of TPK cadres from information providers into learning facilitators who promote interactive, two-way communication with target families. The application's user-friendly interface, simple navigation, and accessibility through smartphones were identified as key factors supporting its acceptance and utilization among cadres. Nevertheless, several challenges remain, including limited internet connectivity, the absence of an offline mode, and variations in digital literacy among TPK cadres, all of which may affect the optimal implementation of the system.

Overall, SIMENIK has considerable potential to be developed as a community based digital health communication model to support the acceleration of stunting reduction programs. The findings suggest that digital health technologies can enhance not only the effectiveness of health information delivery but also the capacity of TPK cadres to provide family-centered health education and assistance. To maximize the effectiveness and sustainability of SIMENIK, future development should prioritize the integration of offline functionality, improvements in digital infrastructure, and continuous capacity-building programs to strengthen the digital competencies of TPK cadres. Furthermore, collaboration among local governments, healthcare institutions, and community stakeholders will be essential to ensure the long-term implementation and scalability of SIMENIK as an innovative digital health communication platform for community-based stunting prevention.

REFERENCES

- Beal, T., Tumilowicz, A., Sutrisna, A., Izwardy, D., & Neufeld, L. M. (n.d.). A review of child stunting determinants in Indonesia. *Maternal & child nutrition*, 14(4), e12617. <https://doi.org/10.1111/mcn.12617>
- Budiani, N. W. (2009). Efektivitas Program Penanggulangan Pengangguran Karang Taruna “Eka Taruna Bhakti” Desa Sumerta Kelod Kecamatan Denpasar Timur Kota Denpasar. *INPUT Jurnal Ekonomi Dan Sosial*, 1(2).

- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* 1 September 1989; 13 (3): 319–340. <https://doi.org/10.2307/249008>
- Indonesia, K. K. R. (n.d.). Situasi Balita Pendek (Stunting) di Indonesia. Pusat Data dan Informasi Kementerian Kesehatan RI.
- Kurniasari, E., Wardani, D. S., Putri, R., & Jannah, M. (2024). Efektifitas Edukasi Menggunakan Media Audio Visual Dan E-Leaflet Terhadap Peningkatan Pengetahuan Kader Posyandu Dalam Pencegahan Stunting Di Masa Pandemi Covid-19. *Jurnal Ilmu Kebidanan dan Kesehatan (Journal of Midwifery Science and Health)*, 14(1), 13-20. <https://doi.org/10.52299/jks.v14i1.146>
- Lasswell, H. D. (1948). The structure and function of communication in society. *The Communication of Ideas*, 1948, 37–52.
- Nurmayani, W., Aswati, M., M., S., A., & Farihan, A. D. (n.d.). Analisis Tim Pendamping Keluarga (TPK) Terhadap Perilaku Keluarga Anak Stunting. *Jurnal Kesehatan Qamarul Huda*, 13(1), 85–97. <https://doi.org/10.37824/jkqh.v13i1.2025.735>
- Organization, W. H. (n.d.). WHO Child Growth Standards: Length/Height-for-Age, Weight-for-Age, Weight-for-Length, Weight-for-Height and Body Mass Index-for-Age. WHO.
- Ramadhani, L., & Sari, D. (n.d.). Efektivitas Strategi KIE dalam Pencegahan Stunting. *Jurnal Promosi Kesehatan Indonesia*, 18(1), 88–96. <https://doi.org/10.14710/jpki.v18i1>
- RI, K. K. (n.d.). Pedoman Pencegahan Stunting. Kemenkes RI.
- Schiavo, R. (2023). Lessons learned from three years of the pandemic: implications for communication and equity. *Journal of Communication in Healthcare*, 16(1), 1–6. <https://doi.org/10.1080/17538068.2023.2184456>
- Sujarwoto, S., Yumarni, T., Saputri, R. A. M., Holipah, H., & Maharani, A. (2025). Exploring community health worker acceptance of mobile health for cardiovascular risk management in rural Indonesian communities. *Digital Health*, 11, 20552076251390310. <https://doi.org/10.1177/20552076251390314>
- Susanti, A., & Banuwa, A. K. (2025). Evaluasi Pasca Diklat Tim Pendamping Keluarga dalam Rangka Percepatan Penurunan Stunting. *Jurnal Abdimas Multidisiplin*, 3(2), 93–102. <https://doi.org/10.35912/jamu.v3i2.5648>
- U.N.I.C.E.F. (n.d.). The state of the world’s children 2021: On my mind – Promoting, protecting and caring for children’s mental health. UNICEF.