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Improving Community Health Literacy through Health Information Management Education in Wollangi Village

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ABSTRACT

Health literacy is essential for rural communities to make informed, safe, and effective health decisions. However, the widespread use of digital media and social media has exposed rural populations to unverified health claims and medical misinformation. This community service program aimed to improve health literacy among residents of Wollangi Village through structured education on health information management. The program employed a four-stage intervention framework comprising identification, planning, implementation, and evaluation. The educational materials addressed four core dimensions of health literacy: accessing, understanding, appraising, and applying health information. Participants were also introduced to practical information verification guidelines based on the "5T" principles (Telusuri, Tinjau, Tanggal, Temukan, and Tanyakan). The interventions included interactive community workshops, digital health education, the distribution of educational materials, and capacity-building activities for local health cadres. Pre-test and post-test evaluations indicated improvements in participants' health knowledge, critical appraisal of online health information, and use of accredited health sources. These findings highlight the role of health administration in fostering collaboration among stakeholders to promote sustainable health literacy in rural communities.

Keywords: Health Literacy, Health Information Management, Community Education, Information Verification, Wollangi Village.

I. Introduction

Health literacy is an important determinant of individual and community well-being because it enables people to access, understand, appraise, and use health information when making decisions about disease prevention, treatment, and everyday health practices. In the digital era, people increasingly obtain health information through search engines, messaging applications, and social media. Although these channels can improve access to valuable information, they can also accelerate the spread of inaccurate or misleading health claims. The World Health Organization (WHO) defines an infodemic as an excessive amount of information, including false or misleading content, that can cause confusion, encourage risky behaviours, and undermine trust in health authorities (Zhang et al., 2024). Health literacy should be understood as a practical capability rather than merely the ability to read written materials. Individuals may be able to read messages on mobile devices but still struggle to assess their accuracy, understand medical terminology,

compare treatment options, or determine when professional assistance is necessary. Health literacy therefore reflects the interaction between individual knowledge and the ways in which health information and services are organized. WHO emphasizes the importance of providing opportunities and supportive systems that enable people to access, understand, appraise, and use health information. This perspective is particularly relevant to rural communities, where information may not always be presented in accessible language, appropriate formats, or sufficient detail. Improving community health literacy consequently requires not only individual awareness but also clear communication from health institutions, responsive services, and reliable information delivered through channels that residents regularly use (Galmarini et al., 2024). The expansion of digital communication has transformed how communities obtain and interpret health information. Residents can access advice from official health websites, online news platforms, social media accounts, discussion groups, and private messages within seconds. These sources can support awareness of disease prevention, immunization, nutrition, maternal and child health, medication use, and available health services.

However, they may also disseminate incomplete, exaggerated, outdated, or false claims. Online messages often use emotional language, personal testimonials, attractive images, or promises of rapid results to attract attention. Individuals may share such messages because they originate from family members, friends, or respected community figures, even when the original sources cannot be verified. The challenge is therefore not that all online health information is unreliable, but that digital environments require users to assess credibility critically while placing greater responsibility on institutions to provide timely and accessible clarification (Smith et al., 2023). Managing an infodemic requires more than correcting individual false claims. It involves monitoring information environments, listening to community concerns, identifying knowledge gaps, communicating evidence in accessible language, strengthening resilience to misinformation, and engaging communities in developing appropriate responses (WHO, 2022; WHO, 2024; Abdekhooda & Dehnad, 2025). Review et al. (2025) emphasize the importance of community engagement in addressing information-related challenges, while Ziapour et al. (2024) identify social media literacy as a relevant component of infodemic management. Their findings also highlight the influence of trust, message consistency, and social context on how individuals interpret and respond to health information. These perspectives support the development of community-based educational interventions that combine practical information-evaluation skills with trusted local relationships. The context of Wollangi Village provides an opportunity to examine how health information management education can be delivered through community participation. Rural communities are heterogeneous, and residents should not be assumed to have identical levels of internet access, educational attainment, language proficiency, or experience with health services. Some may be proficient in using messaging applications but unfamiliar with official health portals, whereas others may rely primarily on family members, community leaders, or local health cadres when interpreting health information. Educational interventions should therefore acknowledge existing information-seeking practices and build on them rather than treating residents as passive recipients of health messages.

Local health cadres and village stakeholders can act as intermediaries between formal health information and everyday community concerns. Their participation can also help identify issues that require further explanation or professional guidance from qualified health workers (Smith et al., 2023). The ability to evaluate digital health information may be influenced by educational background, language, digital skills, socioeconomic conditions, and access to reliable health services. A systematic review by Milanti et al. (2023) indicates that eHealth literacy is shaped by multiple individual and structural factors and is associated with health-promoting and preventive behaviours. Accordingly, health education should extend beyond the provision of factual information to help community members evaluate information sources, compare claims with reliable evidence, and seek clarification from qualified health professionals. Research on misinformation interventions also suggests that accuracy prompts, debunking strategies, media literacy guidance, and warning labels can help reduce belief in or the dissemination of misinformation, although their effectiveness varies across contexts (Smith et al., 2023). These findings highlight the need for practical educational approaches that enable rural residents to evaluate health information critically and apply it appropriately in everyday life. In response to these challenges, a community service program was implemented in Wollangi

Village to strengthen health literacy through health information management education. In this context, health information management refers to the practical processes of searching for, verifying, understanding, communicating, and responsibly using health information. The educational activities incorporated the 5T verification approach—Telusuri, Tinjau, Tanggal, Temukan, and Tanyakan—as a practical framework for evaluating digital health messages. The program involved community members, local health cadres, and village stakeholders to improve residents' ability to make informed health decisions, recognize potentially misleading information, and identify situations requiring professional advice. This article describes the program's implementation and evaluates its outcomes using pre-test and post-test assessments. Given the short-term nature of the evaluation, any observed improvements in knowledge should be interpreted as immediate learning outcomes rather than evidence of sustained behavioural change (Urstad et al., 2022).

II. Literature Review and Hypothesis Development

2.1. Conceptual Landscape of Health Literacy and Information Management

Health literacy encompasses the skills required to access, understand, appraise, and apply health information to support informed health decisions. In digital environments, these skills also involve searching for information online, evaluating the credibility and relevance of websites and social media posts, and applying information appropriately. Milanti et al. (2023) explain that eHealth literacy is influenced by factors such as age, educational attainment, language, socioeconomic circumstances, and digital and information literacy skills. Digital health literacy is likewise a multidimensional concept that combines health-related knowledge with the skills needed to navigate digital technologies. These findings support an approach that considers both individual competencies and the community environments in which health information is accessed (Milanti et al., 2023). A useful conceptual framework for health literacy comprises four interconnected dimensions: accessing, understanding, appraising, and applying health information. Accessing refers to obtaining information from relevant sources, including health professionals, printed materials, government websites, and digital platforms. Understanding involves interpreting information, including terminology, recommendations, numerical data, and limitations. Appraising entails evaluating the source of information, the supporting evidence, its timeliness, and its consistency with guidance from other credible sources. Applying refers to using information appropriately when making decisions, recognizing when available information is insufficient, and seeking advice from qualified professionals when necessary. These dimensions are interrelated: accessing information without critically appraising it may expose individuals to unreliable claims, whereas appraisal without adequate comprehension may hinder their ability to determine the relevance of information to specific health situations (Purnat & Tabche, 2024). Digital health literacy extends these competencies to online environments. It involves searching for information, navigating websites and applications, evaluating online credibility, interpreting digital content, and using information to support health-related decisions. Ban et al. (2024) discuss digital health literacy as a multidimensional concept, while other research identifies personal and contextual factors associated with eHealth literacy. Digital health literacy should not be equated with general familiarity with smartphones or other digital devices.

Individuals may use social media frequently yet have limited experience checking the publication dates of health-related posts, tracing information to its original source, or distinguishing advertisements from independent health advice. Conversely, individuals who use the internet less frequently may demonstrate sound judgement by regularly consulting health professionals and other trusted sources (Rachmawati et al., 2021). The distribution of health literacy across different social groups is an important consideration in program planning. Age, education, income, language, disability, digital access, confidence, and previous experiences with health services can influence how individuals obtain and interpret health information. These factors should not be used to stereotype individuals; rather, they highlight the importance of designing educational interventions that accommodate diverse participant needs. Lengthy presentations containing technical terminology may be less effective for some audiences than concise explanations, visual examples,

group discussions, and practical exercises. A systematic review and meta-analysis by Merga (2025) provides evidence of the relevance of visual-based interventions in supporting health literacy in healthcare settings. In community education, visual materials should therefore be accurate, readable, culturally appropriate, and accompanied by explanations and opportunities for discussion rather than distributed without further guidance. Health literacy also has an organizational dimension. Health services can facilitate or hinder the use of health information through the design of communication materials, appointment systems, medication instructions, responses to questions, and follow-up procedures. The World Health Organization emphasizes that health literacy depends on both individual competencies and organizational structures. Residents who cannot access clear information about available health services may encounter barriers that individual training alone cannot overcome. Similarly, health professionals who use unexplained technical terminology may unintentionally contribute to misunderstanding. Community education should therefore be complemented by efforts to strengthen communication and coordination among residents, health cadres, village officials, and local primary healthcare centres (Puskesmas). The ultimate goal is to establish a supportive health information environment rather than expecting individuals to navigate complex information systems independently (Id et al., 2024).

2.2. Critical Evaluation of the Literature and Identification of the Research Gap

Recent systematic reviews and empirical studies suggest that digital health literacy interventions can improve selected health-literacy outcomes and support informed health decision-making. Although digital platforms provide convenient access to health information, they may also expose users to misinformation when individuals lack the critical appraisal skills needed to distinguish reliable guidance from sensationalized or misleading claims (Ban et al., 2024). However, the effectiveness of digital health literacy interventions depends on factors such as intervention design, target population, duration, and outcome measures. Barbati et al. (2025) reviewed interventions related to digital health literacy and healthcare access, reporting improvements in health literacy, medication adherence, and confidence in using health resources across the studies examined. Similarly, Galmarini et al. (2024) reviewed experimental studies on eHealth literacy interventions, highlighting the importance of structured educational approaches and appropriate outcome measurement. These findings support the rationale for implementing health literacy education in Wollangi Village, although they do not establish that similar outcomes will occur in every community. An important component of digital health literacy is the ability to identify and evaluate trustworthy health information. Smith et al. (2023) examined interventions designed to improve individuals' ability to identify reliable digital health information. Practical verification skills include identifying the author or institution responsible for a message, locating the original publication, checking the publication date, comparing claims with authoritative sources, and consulting health professionals when uncertainty remains. These activities are more directly applicable to everyday digital behaviour than general advice to exercise caution online. Nevertheless, source verification should not be regarded as a guarantee of accuracy. Rather, it provides a structured approach to making better-informed judgements and does not replace clinical assessment or professional advice. Evidence concerning misinformation interventions also indicates that educational activities should be supported by trustworthy communication and community participation. Smith et al. (2023) reviewed interventions addressing COVID-19 misinformation, while Whitehead et al. (2023) examined communication strategies for addressing vaccine misinformation.

Ziapour et al. (2024) also highlighted the relevance of social media literacy to infodemic management. Although these studies offer useful insights, their interventions differ in content, target populations, and outcome measures. Consequently, conclusions about effectiveness should reflect the scope and strength of the available evidence. In the present program, improvements in post-test scores can be interpreted as immediate educational outcomes. However, claims that the intervention reduced misinformation sharing would require direct assessments of sharing intentions or actual sharing behaviour over time. Abdekhoda and Dehnad (2025) discuss infodemic management as a multifaceted effort involving

education, accessible information resources, effective communication, community networks, digital platforms, and health-worker participation. Combining these approaches is important because corrective information may not reach the same audiences as the original misleading messages. Furthermore, community members may hesitate to ask questions if they fear being judged for believing or sharing inaccurate information. A respectful learning environment can encourage participants to express uncertainty and seek clarification. Health professionals and local health cadres can then demonstrate verification techniques without stigmatizing individuals who have encountered misleading content. This approach may help maintain trust and encourage residents to seek reliable information when needed (Mukhtar et al., 2025). Despite the growing body of literature, the applicability of existing findings to Wollangi Village requires careful consideration. Much of the available evidence concerns healthcare settings, online interventions, student populations, or communities outside Indonesia. Although these studies provide conceptual and methodological guidance, local implementation must account for differences in internet connectivity, commonly used communication platforms, language preferences, educational backgrounds, healthcare access, and trust in institutions.

A review of digital interventions for individuals living with chronic diseases reported improvements in health-literacy-related outcomes, although intervention approaches and measured outcomes varied across studies (The Effect of Digital Interventions on Related Health Literacy and Skills for Individuals Living with Chronic Diseases, 2023). Research on health misinformation also identifies strategies such as accuracy prompts, debunking, media literacy guidance, and warning labels as potential approaches to addressing misinformation. Zhang et al. (2024) further highlight the importance of understanding information environments and developing responses suited to the populations concerned. These findings indicate that educational interventions should be adapted to local circumstances and supported by trusted health professionals. Research on information literacy in Indonesia also provides a relevant foundation for community-based health education. Nugrahani (2022) discusses information literacy as an approach to preventing health-related hoaxes on social media, highlighting the relevance of critical information-evaluation skills in addressing misinformation. Nevertheless, findings from broader reviews and studies cannot automatically be generalized to every rural Indonesian community. Local educational activities need to reflect community language, digital access, healthcare availability, and the influence of trusted community figures. The present program addresses this practical need by documenting a community-based educational intervention in Wollangi Village that integrates health information management with the 5T verification approach. Its contribution is contextual and practical, demonstrating how information verification can be incorporated into village-level education. However, the short-term pre-test and post-test design provides only an initial indication of immediate learning and cannot independently establish long-term retention or behavioural change (Rachmawati et al., 2021; Urstad et al., 2022). The research gap, therefore, does not lie in the absence of studies on health literacy or misinformation. Rather, it concerns the need for context-specific documentation of how health information management education can be implemented in rural Indonesian communities and how practical verification techniques can be integrated into community learning activities.

Existing reviews identify potentially useful intervention strategies but do not replace detailed accounts of implementation in particular settings. Such accounts should explain participant characteristics, educational activities, adaptation of learning materials, stakeholder involvement, and the indicators used to evaluate outcomes. This information can help future programs compare approaches, identify implementation challenges, and improve intervention design (Urstad et al., 2022). To address this gap, the present community service program implemented health information management education in Wollangi Village using the 5T verification approach: *Telusuri sumber* (trace the source), *Tinjau isi* (examine the content), *Tanggal informasi* (check the date), *Temukan pembanding* (find corroborating information), and *Tanyakan kepada tenaga kesehatan* (consult a health professional). The framework was designed as a practical educational aid rather than a separately validated measurement instrument. Its purpose was to translate the broader concept of critical appraisal into a memorable sequence that participants could practise when encountering digital health messages. Pre-test and post-test assessments were used to examine immediate learning outcomes.

Future studies could strengthen the evidence by incorporating validated measurement instruments, transparent scoring procedures, comparison groups where feasible, and follow-up assessments to evaluate knowledge retention and practical application (Barbati et al., 2025). Although practical verification tools have been discussed in previous research, further context-specific evaluation is needed to understand how structured health information management education incorporating the 5T framework can support health literacy in rural Indonesian communities. Accordingly, this program documents the implementation of the 5T approach in Wollangi Village and examines changes in participants' knowledge through pre-test and post-test assessments. The findings are intended to provide preliminary evidence of immediate learning outcomes and practical insights for developing similar community-based health literacy initiatives in comparable settings (Li et al., 2022).

2.3. Theoretical Framework

This study adopts an integrated framework that conceptualizes health literacy as the combination of individual competencies and institutional support. At the individual level, participants develop the skills needed to access, understand, and appraise health information. At the community level, health cadres, village officials, and health professionals help residents identify credible sources and clarify uncertain or misleading claims. This multilevel approach is consistent with the World Health Organization's emphasis on community engagement, accessible health information, and the involvement of trusted health professionals in infodemic management (WHO, 2022). Within this framework, the 5T approach serves as a practical educational checklist rather than a separately validated measurement instrument (Galmarini et al., 2024). The framework also recognizes that health literacy is shaped by interactions between individuals and institutions. Individual competencies include searching for information, understanding key messages, evaluating credibility, and making informed health decisions. Institutional support encompasses accessible health communication, the availability of qualified health professionals, responsive services at local primary healthcare centres (Puskesmas), and coordination among village officials, health cadres, educational institutions, and healthcare providers. This relationship is important because even well-informed residents may encounter barriers when healthcare services are difficult to access or official information is inconsistent. Conversely, clear and accessible institutional communication can help residents with limited experience navigating digital information sources. Accordingly, the framework conceptualizes community health literacy as a shared responsibility between individuals and the institutions that serve them (Saleem & Jan, 2024).

Within this framework, the 5T approach functions as a practical learning scaffold for evaluating digital health information. *Telusuri* encourages participants to identify the source and author of a message. *Tinjau* prompts them to examine the full content rather than relying solely on a headline or image. *Tanggal* reminds them to check the publication date and determine whether the information remains current. *Temukan* encourages them to compare claims with other credible sources, particularly official health institutions and evidence-based materials. Finally, *Tanyakan* encourages consultation with qualified health professionals when information remains unclear or when a health-related decision requires professional guidance. Although this sequence provides a practical structure for information verification, it does not qualify participants to diagnose medical conditions, modify medication regimens independently, or substitute informal information checking for professional healthcare (Smith et al., 2023). Overall, this study applies an integrated Health Information Management and Public Health Literacy Framework. The framework proposes that strengthening health literacy in rural communities requires both individual skill development, particularly critical appraisal of health information, and institutional support through collaboration among village authorities, Puskesmas personnel, health cadres, and academic institutions. By integrating these dimensions, the framework provides a conceptual basis for implementing and evaluating community-based health information management education (WHO, 2022).

2.4. Hypothesis Development



Based on the literature review and the educational objectives of the program, three hypotheses are proposed to guide the evaluation of the community service program in Wollangi Village. These hypotheses address immediate learning outcomes, the application of information verification skills, and the role of stakeholder collaboration in supporting program implementation.

- H1 : Structured health information management education significantly improves residents' health literacy knowledge and understanding of disease prevention in Wollangi Village (Li et al., 2022).
- H2 : Educational activities incorporating the 5T verification approach improve residents' ability to identify credible health information sources and reduce their intention to share unverified online health claims (Whitehead et al., 2023).
- H3 : Collaboration among village officials, healthcare professionals, and trained health cadres strengthens local health administration and supports the sustainability of community health literacy initiatives in Wollangi Village (Urstad et al., 2022).

These hypotheses should be interpreted in accordance with the scope of the program evaluation and the available evidence. H1 focuses on immediate changes in health literacy knowledge and understanding of disease prevention. H2 addresses the development of information verification skills and intentions concerning the sharing of unverified health claims. H3 concerns the contribution of stakeholder collaboration to program implementation and the potential sustainability of educational activities. Testing H1 and H2 statistically requires reporting the actual pre-test and post-test scores, the sample size included in each analysis, the scoring range, missing responses, and the statistical procedures employed. H3 requires additional implementation evidence, such as partner attendance, stakeholder participation, follow-up activities, and the continuation of educational initiatives after the initial program. These indicators would help establish whether collaboration contributes to implementation and sustainability. Distinguishing intended outcomes from measured outcomes is essential for transparent academic reporting. If the available evidence consists primarily of general observations and descriptive reports of improved post-test performance, the findings should be presented descriptively without assigning unsupported effect sizes or statistical significance values. If numerical data are available, appropriate descriptive statistics and, where justified by the study design and data characteristics, paired statistical tests may be used to assess changes between pre-test and post-test scores. Similarly, reductions in misinformation-sharing behaviour should not be claimed unless such behaviour has been directly measured. The study can nevertheless contribute valuable practical insights by documenting program implementation, participant characteristics, observed learning outcomes, and methodological limitations, while identifying more rigorous outcome assessment as a priority for future research.

III. Research Method

The community service program was conducted in Wollangi Village using an interactive, community-based educational approach. The intervention consisted of four systematic phases: identification, planning, implementation, and evaluation. These phases were designed to align community needs with educational activities and assessment procedures.

3.1. Identification Phase

The identification phase focused on assessing community health literacy needs, identifying commonly used health information channels, and determining the challenges residents faced in accessing reliable information. Information was gathered through informal discussions, brief questionnaires, consultations with local health cadres, and input from personnel at the local primary healthcare centre (Puskesmas). The assessment also explored health-related claims that caused uncertainty among residents.

Any identified misinformation was documented carefully to understand community learning needs without unnecessarily reproducing potentially harmful claims or stigmatizing individuals who had encountered misleading information (Rachmawati et al., 2021).

3.2. Planning Phase

The planning phase involved translating the identified needs into clear educational objectives and developing appropriate learning materials. The materials included infographics, posters, presentation slides, and practical examples designed to communicate health information in accessible language. The educational plan specified the session duration, facilitator responsibilities, learning activities, required materials, venue, and evaluation procedures. It also identified reliable information sources that participants could consult after the sessions, including official government health resources and local healthcare services. Coordination with village officials and Puskesmas representatives helped ensure the accuracy of educational content and established referral pathways for questions requiring professional guidance (Urstad et al., 2022).

3.3. Implementation Phase

The implementation phase involved interactive health education sessions, group discussions, practical information-verification exercises, and capacity-building activities for local health cadres (kader kesehatan). Participants were introduced to the 5T verification approach: *Telusuri* (trace the source), *Tinjau* (examine the content), *Tanggal* (check the publication date), *Temukan* (find corroborating information), and *Tanyakan* (consult a health professional). During the practical exercises, facilitators presented sample health messages and guided participants in identifying their sources, examining their content, checking publication dates, and comparing claims with credible references. Participants were encouraged to recognize warning signs such as unclear authorship, missing publication dates, emotionally manipulative language, unsupported claims of guaranteed cures, and pressure to share information immediately. These indicators were presented as reasons for further verification rather than definitive proof that a message was false. The sessions also emphasized that the professional appearance of a website or message does not necessarily establish its credibility and that uncertain health claims should be discussed with qualified health professionals.

3.4. Evaluation Phase

The evaluation phase assessed immediate learning outcomes through pre-test and post-test assessments aligned with the program's educational objectives. The assessments were designed to examine participants' knowledge of health literacy and their understanding of health information verification. Participant satisfaction was also assessed to identify whether the educational materials, language, examples, and session pace were appropriate and understandable. Where applicable, follow-up activities involving local health cadres were used to support the continued application of verification skills and identify questions requiring referral to health professionals. The evaluation also considered participant engagement and the potential for sustaining educational activities within the community. For transparent reporting, the analysis should specify the number of participants who completed each assessment, the scoring procedures, the handling of incomplete responses, and whether descriptive or inferential statistical methods were used. These methodological details are necessary to interpret the findings appropriately and distinguish immediate learning outcomes from longer-term behavioural changes (Galmarini et al., 2024).

IV. Results and Discussion

4.1. Results of the Analysis

4.1.1. Participant Characteristics

The community service program was conducted in Wollangi Village and involved community members, local health cadres (kader kesehatan), and village officials or community leaders. Based on the reported results, a total of 40 participants completed the program. The participants comprised 20 males (50.0%) and 20 females (50.0%). Regarding age, the largest group consisted of participants aged 31–40 years (17 participants, 42.5%), followed by those aged 41–50 years (10 participants, 25.0%), 20–30 years (7 participants, 17.5%), and over 50 years (6 participants, 15.0%). In terms of educational attainment, 15 participants had completed senior high school (37.5%), 12 had completed junior high school (30.0%), 10 had completed primary school (25.0%), and 3 had attained higher education qualifications (7.5%). Regarding participant roles, 28 were community members (70.0%), 9 were local health cadres (22.5%), and 3 were village officials or community leaders (7.5%). These characteristics indicate that the program involved participants with diverse educational backgrounds and community roles, providing an opportunity to promote health literacy through both individual learning and local stakeholder engagement.

Table 1. Participant Characteristics

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	20	50.0
Female	20	50.0
Age (years)		
20–30	7	17.5
31–40	17	42.5
41–50	10	25.0
Over 50	6	15.0
Educational attainment		
Primary school	10	25.0
Junior high school	12	30.0
Senior high school	15	37.5
Diploma or bachelor's degree	3	7.5
Participant role		
Community members	28	70.0
Health cadres	9	22.5
Village officials and community leaders	3	7.5
Total	40	100.0

Source: Program data.

4.1.2. Health Literacy and Knowledge Improvement

The reported evaluation findings indicate improvements in participants' understanding of basic health literacy, disease prevention, and appropriate medication use following the educational intervention. Participants also practised applying the 5T verification approach to evaluate digital health information. The exercises involved checking source credibility, reviewing publication dates, comparing health claims with information from official health websites, and consulting personnel at the local primary healthcare centre

(Puskesmas) when clarification was needed. These activities were designed to help participants develop a systematic approach to evaluating online health messages rather than accepting or sharing information without verification. The findings are consistent with the program's objective of strengthening residents' ability to access, understand, appraise, and apply health information responsibly. However, the actual pre-test and post-test scores are not provided in the available manuscript. Therefore, the magnitude of the improvement and its statistical significance cannot be established from the information reported. The program also emphasized capacity building for local health cadres. Their involvement provided an opportunity to strengthen community-level support for identifying reliable health information and directing residents to appropriate health services. Nevertheless, cadres' responsibilities should remain within the scope of their training. They can facilitate access to reliable information and refer clinical questions to qualified health professionals, but they should not independently diagnose illnesses or recommend changes to prescribed medication.

4.2. Discussion

a. The Role of Structured Education in Strengthening Health Literacy

The reported learning outcomes suggest that structured community education can provide a practical means of introducing health literacy concepts and information verification skills. The use of interactive discussions and practical exercises allowed participants to engage with examples of digital health information and consider how credibility can be assessed before information is used or shared. These findings are consistent with research on digital health literacy interventions. Mukhtar et al. (2025) and Barbati et al. (2025) discuss evidence indicating that structured eHealth literacy interventions can improve selected health-literacy outcomes. Mohamed et al. (2024) examine interventions designed to help individuals identify trustworthy digital health information. Collectively, these studies provide a basis for incorporating source evaluation and critical appraisal into community education. However, the findings from Wollangi Village should be interpreted in relation to the available evaluation data. Similarities between the program's educational approach and those described in previous studies do not establish equivalent intervention effects. Differences in participant characteristics, educational materials, measurement instruments, and implementation procedures may influence outcomes. Accordingly, the present findings provide preliminary evidence of the program's practical relevance, while more complete quantitative reporting and follow-up assessments are needed to establish the extent and persistence of learning gains.

b. Application of the 5T Verification Approach

The 5T approach provides a practical framework for translating abstract health literacy concepts into everyday information-evaluation activities. Online health messages may contain plausible medical statements without sufficient context, present outdated information as current, use personal testimonials as evidence of general treatment effectiveness, or promote commercial products as though they were independent health advice. By encouraging participants to trace the source, examine the content, check the publication date, find corroborating information, and consult health professionals, the 5T approach offers a structured process for evaluating such messages. These steps can help participants recognize uncertainty and seek further clarification before making health-related decisions. This is particularly important when online claims encourage individuals to discontinue treatment, use unverified products, or delay professional medical care. Nevertheless, the checklist should be understood as an educational aid rather than a guarantee that information is accurate. Source verification and comparison with credible references can support informed judgement, but they do not replace professional clinical assessment. Smith et al. (2023) discuss interventions designed to improve individuals' ability to identify trustworthy digital health information, supporting the relevance of practical verification exercises in community-based education.

c. Community Participation and Trust in Health Information

Community participation is another important consideration in the implementation of health literacy programs. Residents may trust information because it comes from familiar individuals, respected community figures, or sources that align with their previous experiences. Consequently, educational interventions should address misinformation without undermining interpersonal trust or discouraging residents from asking questions. A constructive educational environment allows participants to express uncertainty and examine the reliability of information without fear of embarrassment. Health professionals and local health cadres can facilitate this process by explaining available evidence, acknowledging uncertainty when appropriate, and directing residents to reliable sources. This approach is consistent with the World Health Organization's emphasis on community engagement and the involvement of trusted health professionals in infodemic management (WHO, 2022). The participation of community members, health cadres, and village stakeholders also provides opportunities to connect formal health information with everyday information-seeking practices. Residents may first encounter a health claim through family members or social media groups before seeking clarification from a cadre or health professional. Coordination among these stakeholders can help promote consistent messages and appropriate referrals. However, the long-term contribution of such collaboration requires further assessment through implementation records and follow-up activities.

d. Educational Materials and Practical Learning

The use of accessible educational materials can support the delivery of health literacy messages to participants with different educational backgrounds and levels of digital experience. Visual examples, concise explanations, and practical exercises may help participants understand the steps involved in evaluating health information. Galmarini et al. (2024) provide a basis for considering the role of visual-based interventions in health literacy education. In village-level activities, comparisons between health messages with identifiable sources and forwarded messages with unclear origins can provide opportunities to practise the 5T steps. Educational materials should clearly identify sources, publication dates, key claims, and channels for obtaining further advice. They should also use readable language and appropriate visual presentation. Importantly, illustrative examples should not be presented as actual local misinformation incidents unless those incidents have been documented. The effectiveness of educational materials should not be inferred solely from their distribution or participants' attendance. Evaluation should examine whether participants understand the information and can apply the verification steps in practical situations. Future assessments could therefore incorporate scenario-based questions requiring participants to explain why a source is credible, identify missing information, and determine when professional advice is necessary.

e. Implications for Health Information Management

The program has practical implications for community-based health information management. Health information changes over time, and materials that were once accurate may become outdated. Sustainable implementation therefore requires a process for reviewing educational content, documenting sources and update dates, and replacing obsolete materials. Local health cadres can support residents by helping them locate reliable information and directing questions to qualified health professionals. Village officials can facilitate community participation by providing venues and communicating program schedules, while Puskesmas personnel can verify health-related content and address technical questions. Academic institutions can contribute by supporting the development of educational materials and appropriate evaluation instruments. This distribution of responsibilities highlights the importance of coordination, clear role definitions, and ongoing monitoring. Rather than relying exclusively on a single educational event, community-based health information management initiatives should establish mechanisms that enable residents to access reliable information and obtain clarification when needed. The program's approach is consistent with broader research emphasizing the importance of structured digital health literacy education, practical verification skills, and community engagement. Causio et al. (2024) and Mukhtar et al. (2025) discuss digital health literacy interventions, while Kisa (2024) and Ismail and Oluka (2025) address approaches to

health misinformation and the role of practical verification strategies. These studies provide relevant context for the Wollangi Village initiative, although their findings should not be interpreted as direct confirmation of this program's effectiveness. The program's specific contribution lies in documenting the application of the 5T approach within a rural community service setting.

4.3. Limitations and Recommendations for Future Research

Several limitations should be considered when interpreting the findings. First, the reported sample consisted of 40 participants, which limits the extent to which the findings can be generalized to other rural communities. Second, the evaluation focused on immediate pre-test and post-test outcomes. Without follow-up assessments, it is not possible to determine whether participants retained their knowledge or consistently applied verification skills in their daily lives. Third, a pre-test and post-test design without a comparison group cannot establish that observed changes resulted exclusively from the intervention. Other factors, including interactions among participants and familiarity with assessment questions, may also have influenced the results. In addition, the available manuscript does not provide the numerical test scores or statistical analyses required to quantify the extent of improvement. Future research should incorporate clearly documented assessment instruments, transparent scoring procedures, and appropriate statistical analyses. Follow-up assessments could examine knowledge retention and the practical application of verification skills over time. Where feasible, scenario-based evaluations and comparison groups could provide stronger evidence of intervention outcomes. Further studies should also examine the sustainability of health cadre participation and the contribution of stakeholder collaboration to continued community education. Overall, the Wollangi Village program provides a practical example of integrating health information management education with a structured verification approach. Its findings offer preliminary insights into the implementation of community-based health literacy activities, while highlighting the need for more comprehensive quantitative evaluation and longer-term follow-up.

V. Conclusion

This community service program highlights the potential of structured educational interventions to strengthen health literacy and information management skills among residents and health cadres in Wollangi Village. The program provided participants with opportunities to practise evaluating health information through the 5T checklist and demonstrated how collaboration between communities and local health institutions can support health literacy development (Alsaad & Aldossary, 2024). However, these outcomes should be interpreted as preliminary educational results, as the available evidence does not establish long-term behavioral changes or a measurable reduction in the sharing of health misinformation. Future evaluations should include complete pre- and post-test data, consistent participant records, and follow-up assessments to determine whether improvements are sustained over time. Theoretically, this program highlights the importance of considering community health literacy in relation to both individual capabilities and the broader information environment. Individuals need practical skills to access, understand, evaluate, and apply health information, while institutions must provide clear messages and accessible opportunities for clarification. The 5T checklist offers a practical structure for teaching information evaluation; however, its effectiveness and validity require further empirical assessment before it can be considered a validated instrument (Saleem & Jan, 2024). Future research could examine its effects on participants' performance in scenario-based assessments and determine whether the skills acquired are retained over time.

From a managerial perspective, local health administration plays an important role in coordinating stakeholders, organizing educational activities, distributing reliable health information, and establishing feedback mechanisms between communities and health services (Milanti et al., 2023). Sustaining the program requires collaboration among village governments, local community health centers (Puskesmas), health cadres, and academic institutions. Practical measures could include periodic training for health cadres,

designated contact points at the Puskesmas for verifying uncertain health claims, regularly updated educational materials, and brief follow-up evaluations. These activities should be adapted to local resources and community needs, with monitoring focused not only on participation rates but also on participants' understanding of key messages, ability to identify reliable information sources, and capacity to apply verification steps to practical situations. Through consistent implementation and evaluation, this collaborative approach may contribute to the sustainable development of community health literacy in Wollangi Village (Lima et al., 2026).

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