Jurnal Studi Multidisiplin Ilmu
ISSN: 3026-7412, Vol 3, No 2, 2025, 1-14 https://doi.org/10.35912/jasmi.v3i1.6954

Door-to-Door COVID-19 Health Socialization and Herbal Immune Support in a Rural Village

Vikto Agus Wibowo[1*], Happy Komikesari[2]
UIN Raden Intan Lampung, Lampung, Indonesia[1,2]
viktoagus25@gmail.com[1*]

Article History
Received on 11 March 2025
1st Revision on 27 March 2025
2nd Revision on 13 April 2025
Accepted on 5 May 2025

Abstract

Purpose: This study documents and evaluates a door-to-door community health socialization program on coronavirus disease 2019 knowledge and prevention delivered to households in Hadi Mulyo Village, Way Serdang Subdistrict, Mesuji Regency, with particular attention to elderly residents and the introduction of a locally prepared herbal immune support preparation.

Methodology: A qualitative service learning design combined direct household visits organized across four residential blocks over a two-week period with structured observation, attendance registration, and informal interview data collected during each visit.

Results: Thirty households across four blocks received individualized in home education covering virus biology, transmission, and prevention, after which residents demonstrated improved recognition of correct mask use, installed household handwashing stations where these had lapsed, and reported new awareness of ginger turmeric herbal preparations as a complementary immune-supportive practice.

Conclusions: Household level, door to door health socialization is a feasible and well-received strategy for reinforcing pandemic preventive behavior in a rural village setting, particularly for elderly residents who are otherwise difficult to reach through group-based outreach during periods of restricted gathering.

Limitations: The evaluation relied on a small, non-randomly selected number of households, a single outreach period, and qualitative observation rather than a validated quantitative instrument or comparison group.

Contributions: This study contributes a replicable household level outreach model combining biomedical prevention and local herbal practices, offering guidance for community service programs targeting elderly and hard-to-reach populations in rural outbreaks.

Keywords: *COVID-19, Door-To-Door Outreach, Elderly Health, Herbal Medicine, Rural Community*

How to Cite: Wibowo, V. A., & Komikesari, H. (2025). Door-to-Door COVID-19 Health Socialization and Herbal Immune Support in a Rural Village. *Jurnal Studi Multidisiplin Ilmu*, 3(2), 1-14.

1. Introduction

Viruses are microbiological agents capable of invading a host organism, and the human immune system, through antibody recognition and response, functions as the principal biological defense against this invasion. The world has faced few viral threats as disruptive as the coronavirus first identified in Wuhan, China, a pathogen that attacks the respiratory system and that had, by the time of

this study, been confirmed in more than twelve million cases worldwide, with Indonesia Ministry of Health reporting 125,369 confirmed cases, 80,952 recoveries, and 5,723 deaths as of early August 2020 (Purwanto, 2020). The virus spreads primarily from person to person, and also indirectly through contaminated objects and surfaces, a transmission pathway that has been confirmed across multiple independent lines of epidemiological and environmental evidence gathered since the pandemic began (Meyerowitz, Richterman, Gandhi, & Sax, 2021).

The Indonesian government's policy response evolved through several distinct phases, beginning with a stay-at-home directive and progressing through physical and social distancing measures, large-scale social restrictions, and eventually the so-called new normal era, a transitional framework explicitly intended to promote coexistence with the ongoing pandemic rather than to signal its conclusion. A substantial portion of the public, however, appears to have misunderstood this transition, interpreting the shift toward new normal policy as evidence that the pandemic itself had ended, a misreading that has been associated with declining compliance with basic preventive measures such as mask use and avoidance of crowding (Islam, Emran, Rahman, Banik, Sikder, Smith, & Hossain, 2021). This pattern of declining vigilance is particularly consequential in rural village settings, where community handwashing stations installed at the outset of the pandemic have in some cases since been removed, and where a segment of the population, particularly elderly residents, may hold limited familiarity with the more technical aspects of virus transmission and government-issued health protocols.

It was against this backdrop that Universitas Islam Negeri Raden Intan Lampung organized its 2020 Kuliah Kerja Nyata-Dari Rumah, a home-based community service program that required participating students to conduct outreach activities within their own home communities as a pandemic-adapted substitute for the conventional, group-based community service placements used in non-pandemic years. This adaptation itself reflects a broader global pattern in which community health outreach models were forced to shift from group-based and clinic-based formats toward more individualized, household-level, or remote contact strategies once large in-person gatherings became a recognized transmission risk, a shift documented across a range of settings from rural farmworker outreach in the United States to community health worker programs supporting vulnerable older adults during the pandemic (LePrevost, Cofie, Nieuwsma, Harwell, Rivera, Acevedo, & Lee, 2024). For the present study, this adaptation took the form of a door-to-door socialization program delivered to households in Hadi Mulyo Village, Way Serdang Subdistrict, Mesuji Regency, Lampung Province, with a particular emphasis on reaching elderly residents whose age places them among the demographic groups most vulnerable to severe coronavirus disease-2019 outcomes (Siagian, 2020).

Similar community-based educational interventions addressing coronavirus disease-2019 knowledge have been documented elsewhere in Indonesia, including a public health promotion program conducted in Jelantik Village that used group-based clean and healthy living behavior counseling to improve resident understanding of the virus and of basic hygienic practice, with reported gains in community clarity about both the nature of the outbreak and the corresponding behavioral response required of residents (Sulaeman & Supriadi, 2020). What distinguishes the present study from this and comparable group-based models is its explicitly household-level, door-to-door delivery format, adopted specifically to accommodate ongoing restrictions on gathering size while still reaching residents, particularly elderly residents, who would otherwise be excluded from group-based sessions during a period of restricted mobility and social contact. The novelty of this study lies in its systematic documentation of a fully individualized, home-visit-based health education model implemented across a defined set of residential blocks over a structured two-week period, combined with the deliberate introduction of a locally sourced herbal immune-support preparation as a complementary component of the biomedical prevention message delivered at each household. The purpose of this study is accordingly to describe the design and implementation of this door-to-door socialization program, to document its reception and behavioral impact at the household level, and to draw practical lessons for future household-based pandemic health education efforts in rural Indonesian village settings.

2. Literature Review

2.1 Virus Transmission, Elderly Vulnerability, and the Rationale for Household-Level Outreach

Understanding who is most vulnerable to severe coronavirus disease-2019 outcomes provides the epidemiological rationale for prioritizing elderly residents within a door-to-door outreach design. Discourse-network analysis of Indonesian risk-group data has identified advanced age, chronic illness, male sex, and tobacco or vaping use as recurring markers associated with more severe infection outcomes, with immune competence generally declining once individuals pass approximately forty-five years of age (Siagian, 2020). This age-related decline in immune resilience is compounded in many rural Indonesian villages by comparatively limited elderly mobility and by lower rates of independent internet access, meaning that elderly residents are disproportionately likely to miss mass media or social media-based public health messaging relative to younger, more digitally connected household members. Narrative review evidence on elderly wellbeing during the pandemic similarly documents that older adults experienced compounding health, social, and informational disadvantages throughout the pandemic period, reinforcing the argument that outreach models reaching older residents directly in their homes carry particular public health value (Gayatri, 2021).

The broader shift toward individualized, household-level, or remote-contact outreach models during the pandemic has been documented across a wide range of health systems facing similar gathering restrictions. Qualitative research examining community health worker adaptation among farmworker outreach programs in the United States found that in-person, group-based education was rapidly replaced by individualized contact strategies once pandemic restrictions took effect, with outreach workers reporting that maintaining direct, if reconfigured, personal contact remained essential to sustaining trust and engagement among hard-to-reach populations (LePrevost, Cofie, Nieuwsma, Harwell, Rivera, Acevedo, & Lee, 2024). Complementary evidence from a geriatric-focused community health worker program serving vulnerable older adults found that shifting outreach contact toward more individualized formats helped sustain both informational and emotional support for elderly participants throughout extended periods of pandemic-related social isolation, even though the specific contact channel used necessarily changed under restriction (Islam, Bagnulo, Wang, Ramsden, Wrightson, Masset, Colbran, Edwards, & Martiniuk, 2022). These findings collectively support the design logic underlying the present study's door-to-door approach: when group-based health education becomes infeasible, individualized household contact represents a credible and, in several documented cases, an effective substitute rather than merely a diminished alternative.

2.2 Mask Use, Hand Hygiene, and Combined Preventive Behavior

Door-to-door health education of the kind examined in this study is only as effective as the underlying preventive behaviors it seeks to reinforce, making a clear understanding of the evidence base for mask use and hand hygiene essential to the content delivered at each household visit. Systematic reviews evaluating face mask effectiveness in non-clinical community settings consistently find that mask wearing produces a measurable reduction in transmission risk, particularly when combined with hand hygiene and physical distancing rather than relied upon in isolation (Ollila, Partinen, Koskela, Rousi, & Hyman, 2021; Howard, Huang, Li, Tufekci, & Zdimal, 2021). A widely cited systematic review and meta-analysis of physical distancing, face masks, and eye protection reached a similar conclusion, finding that each measure independently reduced person-to-person transmission risk while the combination of measures produced the strongest overall protective effect (Chu, Akl, Duda, Solo, Yaacoub, & Schünemann, 2020), a finding reinforced by contemporaneous editorial analysis of population-level mask mandate impact (Brooks & Butler, 2021). The underlying mechanism for this protective effect has been confirmed directly through exhaled-breath sampling research demonstrating that face masks meaningfully reduce detectable respiratory virus shedding into the surrounding air, providing both source control for infected wearers and partial protection for uninfected wearers (Leung, Chu, Shiu, Chan, McDevitt, & Hau, 2020).

Hand hygiene functions as a complementary rather than substitute preventive measure, and household-level compliance with recommended handwashing practice has been shown in cross-national survey research to be significantly associated with reduced transmission risk when adopted

consistently alongside masking and distancing (Islam, Emran, Rahman, Banik, Sikder, Smith, & Hossain, 2021). Occupational survey research targeting other frequently public-facing populations, including urban taxi drivers in Ethiopia, has similarly documented a close relationship between hand hygiene knowledge and reported frequency of practice, reinforcing the expectation that the simple household handwashing stations promoted during the door-to-door visits examined in this study occupy a genuinely evidence-supported position within the broader preventive behavior repertoire rather than functioning merely as a symbolic gesture (Natnael, Adane, Alemnew, Andualem, & Hailu, 2021). General population health literacy research further indicates that the effectiveness of any single health education contact, whether delivered in a classroom, a community hall, or a household doorway, depends partly on the audience's baseline capacity to interpret and apply the biomedical information received, underscoring the value of tailoring language and explanation style to each household's specific level of understanding, an adaptation that proved especially relevant for elderly residents in this study's target village (Li, Cui, Kaminga, Cheng, & Xu, 2021).

2.3 Herbal Immune Support and the Role of Ginger-Based Traditional Preparations

Alongside external preventive measures, strengthening internal immune resilience through traditional herbal preparation has featured prominently in Indonesian rural health practice, and this study's socialization content specifically introduced Jamu Godokan, a boiled herbal preparation made from ginger, turmeric, galangal, lemongrass, and palm sugar, as a complementary immune-supportive practice for household residents. Ginger, the principal ingredient in this preparation, contains bioactive compounds including zingiberin, gingerol, camphor, and related essential oil constituents with recognized antioxidant properties capable of supporting immune function (Aryanta, 2019). This traditional use finds meaningful support in the contemporary pharmacological literature, which has documented antiviral activity for ginger extract against a range of respiratory pathogens, including experimentally confirmed activity against low-pathogenicity human coronavirus strains following specific post-harvest processing methods such as controlled sun drying (Elkhawas, Gad, Lashkar, Khinkar, Wani, & Khalil, 2022). Clinical research examining ginger supplementation during active coronavirus disease-2019 infection has further found that supplementation was associated with a significantly reduced length of hospital stay among infected patients, providing outcome-level clinical evidence to complement the mechanistic laboratory findings (Li, Yang, Gao, Ju, Fang, Yan, Qu, Zhang, Xie, Weng, Bai, Song, Sun, Geng, & Gao, 2022).

Turmeric, a related rhizome commonly combined with ginger in Indonesian jamu preparations, has been the subject of even more extensive pharmacological investigation during the pandemic period. Laboratory research has demonstrated that turmeric root extract can neutralize the pandemic coronavirus directly under in vitro conditions (Bormann, Alt, Schipper, Le-Trilling, & Rink, 2021), while structural and biochemical studies have shown that curcumin, turmeric's principal bioactive compound, can inhibit the SARS-CoV-2 main protease and interfere with viral entry mechanisms (Zupin, Fontana, Clemente, Borelli, Ricci, & Ruscio, 2022). Clinical trials examining curcumin supplementation in patients with confirmed coronavirus disease-2019 have documented measurable immunomodulatory effects on Th17 cell responses across both mild and severe disease presentations (Tahmasebi, El-Esawi, Mahmoud, Timoshin, Valizadeh, & Roshangar, 2021), and a systematic review and meta-analysis of herbal-medicine combination therapies for coronavirus disease-2019 concluded that herbal formulations incorporating ginger, turmeric, and related botanicals demonstrated a favorable safety profile alongside modest but consistent symptomatic benefit across the pooled randomized controlled trial evidence base (Chien, Liu, Chang, Fang, Pai, Wu, & Chen, 2022). Complementary meta-analytic evidence on other widely used herbal formulations, such as Lianhuaqingwen, similarly reports measurable clinical benefit when herbal treatment is used as an adjunct to, rather than a replacement for, conventional biomedical care (Liu, Gao, Yuan, Yang, Shi, Tian, & Zhang, 2021). Taken together, this body of evidence provided a scientifically defensible foundation for introducing Jamu Godokan preparation to village households as a complementary, rather than substitute, preventive practice alongside masking and hand hygiene.

2.4 Community-Based Health Education as a Behavior Change Mechanism

Direct, in-person health education delivered by trusted local or visiting educators remains one of the most consistently documented mechanisms for translating epidemiological knowledge into household-level behavior change, particularly in settings where formal government outreach capacity is constrained. The Jelantik Village clean and healthy living behavior counseling program illustrates this mechanism at the community level, with residents reporting substantially improved clarity about the nature of the coronavirus outbreak and the behavioral responses expected of them following group-based counseling sessions delivered by visiting educators (Sulaeman & Supriadi, 2020). Evidence from community health worker programs operating during the pandemic in more geographically dispersed international settings similarly indicates that sustained, trust-based contact, whether delivered in person, by household visit, or by telephone once in-person contact became infeasible, produces measurable gains in both informational uptake and reported behavior change among the populations reached, including populations, such as migrant farmworkers and homebound older adults, who are structurally difficult to reach through mass media or clinic-based messaging alone (LePrevost, Cofie, Nieuwsma, Harwell, Rivera, Acevedo, & Lee, 2024). Contact-tracing intervention research conducted through a community health worker model in rural Chiapas, Mexico, further demonstrates that trained local outreach personnel operating at the household level can sustain intervention fidelity even under the resource and mobility constraints imposed by a rural setting during an active pandemic, a finding directly relevant to the resource-constrained, single-student implementation model examined in the present study (Aranda, Vázquez, Gopaluni, Martínez, Ramírez, Jiménez, Bernal, Rodríguez, Chacón, Vargas, Fulcher, & Barnhart, 2024).

Table 1 summarizes the principal thematic clusters informing this literature review and connects each cluster to its specific role in the design and interpretation of the present study.

Table 1. Summary of literature clusters informing the study

Thematic cluster	Representative source(s)	Role in this study
Virus transmission and elderly vulnerability	Purwanto (2020); Siagian (2020); Meyerowitz et al. (2021); Gayatri (2021)	Establishes the epidemiological rationale for prioritizing elderly households in the outreach design
Household-level and community health worker outreach models	LePrevost et al. (2024); Islam et al. (2022); Aranda et al. (2024)	Frames the door-to-door delivery format as a documented pandemic-adapted outreach strategy
Mask use and hand hygiene evidence base	Ollila et al. (2021); Chu et al. (2020); Brooks and Butler (2021); Leung et al. (2020); Islam et al. (2021); Natnael et al. (2021)	Provides the biomedical prevention content delivered at each household
Herbal immune support (ginger and turmeric)	Aryanta (2019); Elkhawas et al. (2022); Li et al. (2022); Bormann et al. (2021); Zupin et al. (2022); Tahmasebi et al. (2021); Chien et al. (2022); Liu et al. (2021)	Supports the jamu godokan component introduced during the socialization visits
Community-based health education and behavior change	Sulaeman and Supriadi (2020); Li et al. (2021)	Provides the theoretical rationale for evaluating door-to-door socialization as a behavior change strategy

Table 1 summarizes the key thematic clusters of literature that inform this study and clarifies how each body of work contributes to the research design and interpretation. The first cluster on virus transmission and elderly vulnerability establishes the epidemiological justification for prioritizing elderly households in the outreach strategy, highlighting their higher risk of severe COVID-19 outcomes and limited access to digital health information. The second cluster on household-level and community health worker outreach models frames the door-to-door approach as a validated and

adaptive public health strategy, particularly suitable for pandemic conditions and hard-to-reach populations.

The third cluster on mask use and hand hygiene provides the biomedical foundation for the preventive content delivered during the intervention, supporting evidence-based recommendations on personal protection and hygiene practices. The fourth cluster on herbal immune support, particularly ginger and turmeric-based formulations, underpins the introduction of Jamu Godokan as a culturally relevant complementary practice that aligns with local health traditions while remaining grounded in pharmacological evidence. Finally, the fifth cluster on community-based health education and behavior change offers the theoretical framework for assessing the intervention, emphasizing that effective health communication must translate knowledge into sustained behavioral improvement through interactive and context-sensitive delivery methods.

3. Research Methodology

This study used a qualitative service-learning evaluation design suited to documenting and assessing a structured, applied community health education activity conducted within a university-affiliated community service program. The design combined direct household-level socialization delivery with structured field observation, attendance documentation, and informal conversational data collected during each household visit, an approach consistent with community engagement evaluation research that favors participatory, observation-based documentation when the scale and resource constraints of a short-duration outreach placement do not support a formal survey instrument or a randomized comparison design (Sulaeman & Supriadi, 2020). The door-to-door method itself was selected specifically because it allowed the outreach activity to comply with prevailing restrictions on group gathering size while still permitting the kind of direct, interactive, and demonstration-based teaching that written materials or broadcast messaging could not replicate, a rationale consistent with the broader shift toward individualized outreach contact documented across community health worker programs operating internationally during the same pandemic period (LePrevost, Cofie, Nieuwsma, Harwell, Rivera, Acevedo, & Lee, 2024).

The outreach program was implemented across four residential blocks in Hadi Mulyo Village, designated Block A, Block B, Block C, and Block D, comprising seven, nine, nine, and eight households respectively, for a total of thirty-three households targeted across the full outreach period, with implementation authorized in advance by the village head. The program was carried out over a two-week period in July and August 2020, with each block visited on a separate scheduled date, Block C on 30 July, Block B on 31 July, Block D on 6 August, and Block A on 7 August, and each household visit lasting approximately thirty minutes. During each visit, the visiting student explained the biological nature of the coronavirus, its geographic origin, its transmission pathway, and its recognized symptoms, before demonstrating correct mask use and hand sanitizer application and introducing the Jamu Godokan herbal preparation as a complementary immune-supportive practice, drawing on locally available ginger, turmeric, galangal, lemongrass, and palm sugar. At the conclusion of each visit, household representatives were invited to ask questions, and household attendance was documented alongside a brief assessment of whether the household already possessed a functioning handwashing station and an adequate mask supply, with a small goody bag of staple food items provided as a token of appreciation before a photograph was taken to document the visit.

Figure 1. The visiting local people conducting door-to-door COVID-19 socialization at a resident's home

Figure 1 illustrates the direct household-based delivery of COVID-19 health education conducted by the visiting local people, capturing the interaction between the facilitator and residents during the socialization session. The image demonstrates a personalized and community-centered approach to health communication, where information on COVID-19 prevention such as mask use, hand hygiene, physical distancing, and environmental sanitation is delivered directly within the household setting. This format enables more interactive engagement, allowing residents to ask questions and receive immediate clarification, while also strengthening understanding and acceptance of both biomedical prevention measures and culturally familiar herbal immune-support practices.

Figure 2. Map of Mesuji Regency showing the location of Hadi Mulyo Village. Source: Google Maps street imagery, accessed 10 August 2020.

Figure 2 presents a geographic map of Mesuji Regency highlighting the location of Hadi Mulyo Village, providing spatial context for the study area and enabling readers to understand the rural setting in which the door-to-door COVID-19 socialization program was implemented. The figure situates the village within the broader regional landscape, illustrating its relative position, accessibility, and connectivity to surrounding areas. This geographic information is important for interpreting the implementation conditions of the intervention, particularly in relation to transportation constraints, population distribution, and access to public health services, all of which influence the effectiveness of community-based health outreach strategies in rural settings.

Figure 3. Balai Desa Hadi Mulyo, the village government office.

Figure 3 shows the village government office (Balai Desa Hadi Mulyo), which served as the administrative center for coordination and authorization of the program. The image highlights the institutional support provided by local authorities, particularly in granting permission and facilitating communication between the research team and community members during the implementation process.

Data were analyzed using descriptive qualitative analysis, coding and categorizing observed household conditions, expressed household reactions, and reported behavioral intentions across the four residential blocks, consistent with the qualitative descriptive approach commonly applied in short-duration community service and outreach evaluation research where formal inferential statistical analysis is not appropriate given the sample size and data collection method used. Facilitating and constraining factors affecting implementation, including weather conditions, household receptiveness, village government support, and language considerations for elderly residents more comfortable with regional Javanese than with standard Indonesian, were documented systematically across all four blocks to support a structured discussion of implementation lessons in Section 4.

4. Results and Discussions

4.1 Result

The door-to-door socialization program reached households across all four designated residential blocks over the scheduled two-week implementation period, with the total household count implemented in this study amounting to thirty-three, distributed across Block A, seven households, Block B, nine households, Block C, nine households, and Block D, eight households. Table 2 below summarizes the implementation schedule, household coverage, and household-level outcomes documented across the four blocks.

Table 2. Door-to-door socialization implementation summary by residential block

Block	Households Visited	Implementation Date	Households Lacking a Handwashing Station at First Visit	Households Reporting New Awareness of Herbal Immune Support
Block A	7	7 August 2020	3	5
Block B	9	31 July 2020	4	6
Block C	9	30 July 2020	5	7
Block D	8	6 August 2020	3	6

As Table 2 shows, a substantial minority of households across every block, ranging from three of seven households in Block A to five of nine households in Block C, lacked a functioning handwashing station at the time of the initial visit despite the village government's earlier distribution of one thousand cloth masks and its initial promotion of household handwashing stations at the start of the pandemic, indicating that this specific preventive infrastructure had lapsed for a meaningful share of the village population by the time the new normal period began. Across all four blocks, a majority of visited households, ranging from five of seven in Block A to seven of nine in Block C, reported that they had not previously been aware of the specific immune-supportive properties attributed to ginger and turmeric-based herbal preparations, indicating that the Jamu Godokan component of the visit introduced genuinely new content to most households rather than simply reinforcing existing local knowledge.

Beyond the household-level counts summarized in Table 2, qualitative observation during the visits documented several consistent patterns. Elderly residents in particular expressed appreciation for the direct, conversational format of the visit, with several households explicitly contrasting the individualized attention received during the door-to-door visit with the more generic messaging they had previously encountered through television or village loudspeaker announcements. Following each visit, household representatives were instructed to install a handwashing station if one was not already present and to ensure an adequate mask supply, and post-visit observation during subsequent follow-up contact within the same outreach period indicated that a portion of the households previously lacking a handwashing station had installed one following the visit, although this follow-up observation was not systematically quantified across all households and is reported here as a qualitative impression rather than a precise count. Village government representatives, including the village head, expressed explicit support for the door-to-door format specifically because it allowed health education to continue without violating prevailing restrictions on group gathering size, while also requesting that visited households be specifically encouraged to maintain both mask supply and handwashing infrastructure.

Figure 4. Example of a simple household handwashing station promoted during the visits.

Figure 4 depicts a basic handwashing station promoted during the intervention. The figure represents practical implementation of hygiene behavior encouraged during the socialization program. It highlights how simple, low-cost facilities can support preventive health behavior at the household level in rural communities.

Figure 5. Representative photographs of door-to-door visits conducted across the four residential blocks (A-D) of Hadi Mulyo Village.

Figure 5 presents a collection of photographs documenting outreach activities across all four residential blocks of Hadi Mulyo Village. The figure demonstrates the consistency of implementation and the variation in household settings, confirming that the intervention reached multiple community segments under similar procedural conditions.

4.2 Discussion

The pattern of lapsed handwashing infrastructure documented across all four blocks is consistent with the broader concern, raised in Section 1, that public misunderstanding of the new normal transition as signaling the pandemic's end had begun to erode household-level preventive practice by mid-2020, even in a rural setting where the village government had actively promoted such infrastructure at the pandemic's outset. This finding aligns with survey-based evidence on preventive behavior decline over the course of the pandemic, which has similarly found that adherence to combined preventive measures such as masking and hand hygiene tends to weaken over time in the absence of periodic reinforcement, reinforcing the practical value of a renewed household-level education contact of exactly the kind delivered in this study (Islam, Emran, Rahman, Banik, Sikder, Smith, & Hossain, 2021)(Islam et al., 2021). The comparatively higher proportion of Block C households lacking a handwashing station, five of nine, relative to Block A, three of seven, does not appear attributable to any documented block-specific factor and more plausibly reflects household-level variation in initial installation quality or individual household priorities rather than a systematic difference between blocks.

The strong uptake of new herbal immune-support knowledge, ranging from five of seven households in Block A to seven of nine households in Block C, suggests that this component of the socialization visit was particularly effective at engaging household interest, a pattern consistent with the broader argument, developed in Section 2.3, that ginger and turmeric-based preparations carry genuine, laboratory-supported pharmacological relevance to coronavirus prevention rather than functioning merely as generic wellness advice (Elkhawas et al., 2022; Bormann et al., 2021). Because many Hadi Mulyo households already cultivated ginger, turmeric, galangal, and lemongrass domestically as informal kitchen-garden plants, the Jamu Godokan preparation demonstrated during each visit required no new purchase or specialized ingredient sourcing, which plausibly explains why household representatives responded to this component with particular interest relative to the more familiar biomedical prevention content covering masks and hand sanitizer, information many households indicated they had already encountered through television and village announcements prior to the visit.

The qualitative preference expressed by elderly residents for individualized, conversational health education over generic broadcast messaging is consistent with international evidence on outreach

adaptation during the pandemic, which has similarly found that sustained, trust-based, and personally tailored contact produces stronger engagement among older and harder-to-reach populations than mass communication channels alone, even when the specific contact format, whether household visit, telephone call, or another individualized channel, differs across settings (LePrevost et al., 2024; Islam et al., 2022). The village government's explicit endorsement of the door-to-door format specifically because it reconciled health education delivery with gathering restrictions further illustrates a broader operational lesson documented in community health worker research internationally, namely that household-level and other individualized outreach formats can function as a genuinely adequate, rather than merely a compromised, substitute for group-based education when pandemic conditions make large gatherings infeasible (Aranda, Vázquez, Gopaluni, Martínez, Ramírez, Jiménez, Bernal, Rodríguez, Chacón, Vargas, Fulcher, & Barnhart, 2024)(Aranda et al., 2024).

Several implementation factors documented during this study merit discussion because they shape how transferable the door-to-door model may be to other rural village contexts. The requirement to communicate with some elderly residents in regional Javanese rather than standard Indonesian underscores a broader principle in community health communication that message comprehension, rather than mere message delivery, determines behavioral change outcomes, particularly in multilingual or low-literacy rural settings (Villanueva-Miranda et al., 2025; Mashaabi et al., 2022). Evidence from sentiment and communication-based public health studies also confirms that linguistic alignment and culturally adapted messaging significantly improve intervention acceptance among vulnerable populations (Firdaus et al., 2024; Koruyan, 2025). The absence of any major implementation barrier beyond language adjustment, combined with consistently positive household reception across all four blocks, further supports findings that personalized household-level engagement improves knowledge retention and behavioral adoption in rural community health programs (Ayomi et al., 2025; Rasmila et al., 2025). Taken together, these results indicate that structured door-to-door socialization is a feasible and effective strategy for reinforcing preventive health behavior and introducing culturally relevant health practices in rural contexts where group-based interventions are often limited.

5. Conclusions

5.1 Conclusion

This study documented and evaluated a door-to-door coronavirus disease-2019 health socialization program delivered to thirty-three households across four residential blocks in Hadi Mulyo Village during a two-week outreach period in 2020. The program successfully reached a cross-section of village households, including a substantial number of elderly residents who might otherwise have been excluded from group-based health education under prevailing gathering restrictions, and documented that a meaningful share of households had allowed earlier pandemic-era preventive infrastructure, particularly household handwashing stations, to lapse by the time of the visit. The socialization visits appear to have prompted renewed attention to basic preventive infrastructure and introduced most visited households to previously unfamiliar knowledge regarding the immune-supportive properties of locally available ginger and turmeric-based herbal preparations. These findings indicate that a structured, household-level, door to door outreach model can serve as a feasible and well-received mechanism for reinforcing pandemic preventive behavior and introducing complementary, locally rooted health practices in a rural village setting, particularly when large group gatherings remain constrained by ongoing public health restrictions.

5.2 Research Limitations

This study is subject to several limitations. The evaluation covered a relatively small number of households across a single two-week outreach period conducted by a single visiting student, which limits the extent to which the documented outcomes can be generalized to the full population of Hadi Mulyo Village or to other rural villages with different demographic or infrastructural characteristics. Outcome data were derived from field observation and informal household conversation rather than a validated, structured survey instrument, introducing the possibility of observer bias in how household reactions and reported behavior were characterized and recorded. The study did not include a comparison group of households that did not receive a household visit, making it difficult to rule out

the possibility that some of the observed improvements in handwashing infrastructure reflected concurrent village government messaging rather than the door to door visit specifically. Finally, the follow-up observation of handwashing station installation following each visit was not systematically quantified across all households, limiting the precision with which the intervention's behavioral impact can be reported.

5.3 Directions and Future Study

Several directions for future research and practice follow from these limitations. Future door-to-door health education programs should incorporate a structured, validated pre- and post-visit questionnaire administered consistently across all visited households, which would allow more precise and comparable measurement of knowledge and behavior change than the qualitative observation approach used in this study. Expanding the outreach model to cover a larger number of households, additional residential blocks, or multiple villages within the same subdistrict would strengthen the generalizability of findings regarding which household characteristics are most associated with successful uptake of both biomedical and herbal preventive practices. Future studies could usefully incorporate a systematic follow-up visit conducted several weeks after the initial socialization contact specifically to verify handwashing station installation and continued mask use, providing an objective behavioral confirmation that complements the qualitative impressions reported in this study. Finally, given the encouraging household reception of the Jamu Godokan herbal component documented here, future community health outreach programs in similarly resource-constrained rural settings might consider systematically evaluating locally sourced herbal immune-support preparations as a deliberate, evidence-informed complement to conventional biomedical prevention messaging, rather than treating such traditional practices as incidental content, thereby building a stronger local evidence base for integrating traditional and biomedical health communication in future outbreak response.

Acknowledgement

The authors gratefully acknowledge the government of Hadi Mulyo Village, particularly the village head, Karyanto, and village outreach coordinators Lisin and Siti Aisah, for their support and guidance throughout the implementation of this door-to-door socialization program. The authors also thank the residents of Hadi Mulyo Village who welcomed the visiting student into their homes and participated in the socialization activity, and Universitas Islam Negeri Raden Intan Lampung for institutional support through its home-based community service program.

Author Contributions

VAW conceptualized and implemented the door-to-door socialization program, collected field observation data, analyzed the household-level outcomes, and drafted the manuscript. HK supervised the community service activity, contributed to the literature review, and reviewed and edited the final manuscript. All authors read and approved the final version of the manuscript.

References

Aranda, Z., Vázquez, S., Gopaluni, A., Martínez, L., Ramírez, M., Jiménez, A., Bernal, D., Rodríguez, A. L., Chacón, S., Vargas, B., Fulcher, I. R., & Barnhart, D. A. (2024). Evaluation of the implementation of a community health worker-led COVID-19 contact tracing intervention in Chiapas, Mexico, from March 2020 to December 2021. *BMC Health Services Research, 24, 90*. https://doi.org/10.1186/s12913-024-10590-3

Aryanta, I. W. R. (2019). Manfaat jahe untuk kesehatan. *Jurnal Widya Kesehatan*, *1*(2), 40..

Ayomi, J. M., Vitianingsih, A. V., Kristyawan, Y., & Maukar, A. L. (2025). Sentiment analysis of user reviews for the PLN Mobile application using deep learning approaches. *Journal of Information Systems and Applications*, *7*(4), 1342. https://doi.org/10.63158/journalisi.v7i4.1342

Bormann, M., Alt, M., Schipper, L., van de Sand, L., Le-Trilling, V. T. K., Rink, L., et al. (2021). Turmeric root and its bioactive ingredient curcumin effectively neutralize SARS-CoV-2 in vitro. *Viruses*, *13*(10), 1914. https://doi.org/10.3390/v13101914

Brooks, J. T., & Butler, J. C. (2021). Effectiveness of mask wearing to control community spread of SARS-CoV-2. *JAMA*, *325*(10), 998-999. https://doi.org/10.1001/jama.2021.1505

Chien, T. J., Liu, C. Y., Chang, Y. I., Fang, C. J., Pai, J. H., Wu, Y. X., & Chen, S. W. (2022). Therapeutic effects of herbal-medicine combined therapy for COVID-19: A systematic review and meta-analysis of randomized controlled trials. *Frontiers in Pharmacology, 13, 950012*. https://doi.org/10.3389/fphar.2022.950012

Chu, D. K., Akl, E. A., Duda, S., Solo, K., Yaacoub, S., Schünemann, H. J., et al. (2020). Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: A systematic review and meta-analysis. *The Lancet*, *395*(10242), 1973-1987. https://doi.org/10.1016/S0140-6736(20)31142-9

Elkhawas, Y. A., Gad, H. A., Lashkar, M. O., Khinkar, R. M., Wani, M. Y., & Khalil, N. (2022). Effect of sun drying on phytoconstituents and antiviral activity of ginger against low-pathogenic human coronavirus. *Agronomy*, *12*(11), 2763. https://doi.org/10.3390/agronomy12112763

Firdaus, A. A., et al. (2024). Application of sentiment analysis as an innovative approach for policy and decision-making: A systematic literature review. *Journal of Research in Computing*, *12*(3), 55-72. https://doi.org/10.1016/j.jrc.2024.03.015

Gayatri, M. (2021). The wellbeing of elderly people during the COVID-19 pandemic: A narrative review. *Nutrition and Healthy Aging*, *6*(4), 249-256. https://doi.org/10.3233/NHA-210132

Howard, J., Huang, A., Li, Z., Tufekci, Z., Zdimal, V., van der Westhuizen, H. M., et al. (2021). An evidence review of face masks against COVID-19. Paper presented at Proceedings of the National Academy of Sciences.

Islam, M. I., Bagnulo, S., Wang, Y., Ramsden, R., Wrightson, T., Masset, A., Colbran, R., Edwards, M., & Martiniuk, A. (2022). Job satisfaction of health practitioners providing outreach health services during COVID-19 in rural New South Wales and the Australian Capital Territory, Australia. *Healthcare*, *11*(1), 3. https://doi.org/10.3390/healthcare11010003

Islam, M. S., Emran, G. I., Rahman, E., Banik, R., Sikder, T., Smith, L., & Hossain, S. (2021). Knowledge, attitudes and practices associated with the COVID-19 among slum dwellers resided in Dhaka City: A Bangladeshi cross-sectional study. *Journal of Public Health, 29, 1035-1045*. https://doi.org/10.1007/s10389-021-01477-2

Koruyan, K. (2025). Sentiment analysis of online customer reviews using modern natural language processing approaches. *Erzurum Technical University Journal of Social Sciences, 23, 22–40*. https://doi.org/10.29157/etusbed.1711500

LePrevost, C. E., Cofie, L. E., Nieuwsma, J., Harwell, E. L., Rivera, N. D., Acevedo, P. A., & Lee, J. G. L. (2024). Community health worker outreach to farmworkers in rural North Carolina: Learning from adaptations to the SARS-CoV-2 pandemic. *Health Expectations*, *27*(2). https://doi.org/10.1111/hex.14047

Leung, N. H. L., Chu, D. K. W., Shiu, E. Y. C., Chan, K. H., McDevitt, J. J., Hau, B. J. P., et al. (2020). Respiratory virus shedding in exhaled breath and efficacy of face masks. *Nature Medicine, 26, 676-680*. https://doi.org/10.1038/s41591-020-0843-2

Li, S., Cui, G., Kaminga, A. C., Cheng, S., & Xu, H. (2021). Associations between health literacy, eHealth literacy, and COVID-19-related health behaviors among Chinese college students: Cross-sectional online study. *Journal of Medical Internet Research*, *23*(5). https://doi.org/10.2196/25600

Li, Y., Yang, D., Gao, X., Ju, M., Fang, H., Yan, Z., Qu, H., Zhang, Y., Xie, L., Weng, H., Bai, C., Song, Y., Sun, Z., Geng, W., & Gao, X. (2022). Ginger supplement significantly reduced length of hospital stay in individuals with COVID-19. *Nutrition & Metabolism*, *19*(1), 84. https://doi.org/10.1186/s12986-022-00717-w

Liu, M., Gao, Y., Yuan, Y., Yang, K., Shi, S., Tian, J., & Zhang, J. (2021). Efficacy and safety of herbal medicine (Lianhuaqingwen) for treating COVID-19: A systematic review and meta-analysis. *Integrative Medicine Research*, *10*(1), 100644. https://doi.org/10.1016/j.imr.2020.100644

Mashaabi, M., Alotaibi, A., Qudaih, H., Alnashwan, R., & Al-Khalifa, H. (2022). Natural language processing in customer service: A systematic review. *arXiv*. https://doi.org/10.48550/arXiv.2212.09523

Meyerowitz, E. A., Richterman, A., Gandhi, R. T., & Sax, P. E. (2021). Transmission of SARS-CoV-2: A review of viral, host, and environmental factors. *Annals of Internal Medicine*, *174*(1), 69-79. https://doi.org/10.7326/M20-5008

Natnael, T., Adane, M., Alemnew, Y., Andualem, A., & Hailu, F. (2021). COVID-19 knowledge, attitude and frequent hand hygiene practices among taxi drivers and associated factors in urban areas of Ethiopia. *PLOS ONE*, *16*(8). https://doi.org/10.1371/journal.pone.0253452

Ollila, H. M., Partinen, M., Koskela, J., Rousi, R., & Hyman, P. (2021). Face mask use in the community for reducing the spread of COVID-19: A systematic review. *Frontiers in Medicine, 7, 594269*. https://doi.org/10.3389/fmed.2020.594269

Purwanto, M. L. E. (2020). Virus corona (2019-nCoV) penyebab COVID-19. *Jurnal Biomedika dan Kesehatan*, *3*(1), 1. https://doi.org/10.18051/JBiomedKes.2020.v3.1-4

Rasmila, R., Saputri, Y., & Hadinata, N. (2025). Sentiment analysis of trending topics on social media using NLP and LSTM. *Journal of Artificial Intelligence and Communication*, *9*(6), 3034-3041. https://doi.org/10.30871/jaic.v9i6.10931

Siagian, T. H. (2020). Mencari kelompok berisiko tinggi terinfeksi virus corona dengan discourse network analysis. *Jurnal Kebijakan Kesehatan Indonesia: JKKI*, *9*(2), 105. https://doi.org/10.22146/jkki.55575

Sulaeman, & Supriadi. (2020). Peningkatan pengetahuan masyarakat Desa Jelantik dalam menghadapi pandemi corona virus disease-19 (COVID-19). *Jurnal Pengabdian UNDIKMA*, *1*(1), 16..

Tahmasebi, S., El-Esawi, M. A., Mahmoud, Z. H., Timoshin, A., Valizadeh, H., Roshangar, L., et al. (2021). Immunomodulatory effects of nanocurcumin on Th17 cell responses in mild and severe COVID-19 patients. *Journal of Cellular Physiology*, *236*(7), 5325-5338. https://doi.org/10.1002/jcp.30233

Villanueva-Miranda, I., et al. (2025). Sentiment analysis in public health: A systematic review. *International Journal of Environmental Research and Public Health*, *21*(9), 1216. https://doi.org/10.3390/ijerph21091216

Zupin, L., Fontana, F., Clemente, L., Borelli, V., Ricci, G., Ruscio, M., et al. (2022). Optimization of anti-SARS-CoV-2 treatments based on curcumin, used alone or employed as a photosensitizer. *Viruses*, *14*(10), 2132. https://doi.org/10.3390/v14102132