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Beyond Awareness: The Impact of Integrated Media and Interpersonal Communication on Maternal Handwashing Behavior in Indonesia

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ABSTRACT: Inadequate hand hygiene continues to pose a major public health threat, particularly in low- and middle-income countries such as Indonesia. This study investigates the influence of combined media and interpersonal communication (IPC) campaigns on maternal handwashing behavior. Utilizing a qualitative synthesis of empirical data from Hanson et al. (2020) and Hirai et al. (2016), This study applied thematic and conceptual analysis grounded in Social Cognitive Theory and the Health Belief Model. The methodology draws on secondary data and literature-based thematic patterns to explore behavior change dynamics. Findings indicate that media alone increases awareness but often fails to lead to sustained behavior change. In contrast, IPC enhances message retention, fosters trust, and enables culturally relevant reinforcement of health behaviors. When used in tandem, media and IPC significantly improve both knowledge and handwashing practices among mothers. Emotional and social motivators, such as concern for child safety and peer influence, further drive behavioral adoption. The results suggest that integrated health campaigns that combine media outreach with interpersonal reinforcement are more effective in promoting hygiene compliance. These insights offer practical guidance for designing community-centered health interventions, particularly in LMIC contexts. The study emphasizes the need for multi-modal, culturally grounded health communication strategies to address hygiene-related challenges.

Keywords: Handwashing Behavior, Interpersonal Communication, Health Campaigns, Hygiene Promotion, Indonesia, Maternal Health, Behavior Change.

INTRODUCTION

The consequences of inadequate hand hygiene represent a critical public health concern, both globally and regionally. Inadequate handwashing remains a principal contributor to the transmission of infectious diseases, notably in low- and middle-income countries where healthcare systems may already be overburdened. Research has shown that hand hygiene practices are directly linked to the prevention of healthcare-associated infections (HAIs), thereby reducing morbidity, mortality, and the

associated socioeconomic costs of preventable diseases (Ferreiraa et al., 2022; Tartari et al., 2017). The urgency of proper handwashing practices was significantly reinforced during the COVID-19 pandemic, which underscored the effectiveness of this simple act in reducing viral transmission (Zakir, 2024).

Evidence from global contexts, including resource-limited settings such as South Sudan and refugee settlements, suggests that failures in individual hygiene practices contribute substantially to public health emergencies (Puol & Obaroh, 2024). These findings highlight the ongoing need for comprehensive, culturally sensitive hygiene promotion interventions that move beyond simple awareness to effect genuine behavior change.

In Indonesia, national efforts to promote hygiene have been ongoing, yet the implementation of recommended handwashing practices remains inconsistent. Among mothers, a key demographic in child health, compliance with handwashing after critical events such as meal preparation or toilet use remains suboptimal. Ajisafe & Babaleye (2024) found that despite awareness of hygiene's importance, daily practice often falters due to socio-cultural and environmental factors. These barriers include limited access to soap and water, low perceived risk, and inadequate community-level reinforcement. Such findings suggest that hygiene promotion in Indonesia requires more than top-down informational campaigns; it must instead be embedded in the lived experiences of individuals.

Public health communication campaigns are one of the primary mechanisms through which hand hygiene practices are promoted. Research has increasingly emphasized the importance of multi-channel campaign strategies in low-resource settings. Odongo (2024) and Suryani (2024) demonstrated that media campaigns integrated with community engagement and digital outreach are more effective in influencing hygiene behaviors than isolated interventions. Such campaigns work best when they incorporate culturally grounded narratives and are reinforced through local community structures. However, these promising results underscore a critical challenge: identifying which aspects of campaign design and delivery lead to successful behavioral outcomes. As Odongo (2024) notes, systematic evaluation is essential to distinguish between effective components and those that merely raise superficial awareness.

Theoretical models of behavior change through communication provide essential frameworks for understanding how such interventions work. Models such as the Health Belief Model (HBM) and Social Cognitive Theory (SCT) argue that perceived benefits, perceived barriers, and cues to action are critical determinants of behavior change (Hamilton, 2019; Kenzig & Mumford, 2021). These frameworks underscore the role of both individual cognition and social context in shaping behavior. Importantly, they also emphasize that external influences, such as peer behaviors or community norms, can reinforce or undermine behavior change efforts. As Hamilton (2019) asserts, sustained behavior change requires both personal motivation and a supportive social environment.

Despite the promise of media campaigns, evidence suggests that they are often limited in their ability to catalyze actual behavior change when implemented in isolation. Nazar & Pieters (2021) argue that

media-only campaigns frequently result in shallow understanding, insufficient to drive habitual practices. This is particularly concerning in environments where media literacy is low and misinformation is prevalent. Moreover, passive media exposure does not allow for the clarification of misunderstandings or engagement with specific concerns, which can be crucial for translating knowledge into practice.

This gap can be addressed by incorporating interpersonal communication (IPC) strategies. IPC not only reinforces media messages but also provides opportunities for dialogue, clarification, and culturally relevant framing. Zamawe et al. (2016) and Pawluk & Zolezzi (2017) highlight the capacity of IPC to foster trust and promote behavior modeling, especially when conducted by community health workers or peer educators. In Indonesia, such community-based reinforcement mechanisms may be essential, given the socio-cultural factors influencing maternal hygiene behavior. As Hether et al. (2023) note, individuals are more likely to adopt behaviors modeled by relatable or trusted figures, particularly in settings where social validation is paramount.

Suryani (2024) further emphasizes the importance of interpersonal narratives and peer influence in driving sustainable hygiene behavior. Campaigns that integrate real-life examples, community discussions, and local champions tend to resonate more deeply with audiences. This approach not only enhances message relevance but also increases the likelihood of behavior adoption through social modeling. As a result, health messages gain traction not merely as abstract ideals but as social norms validated by one's immediate community.

Given this context, the present study explores the extent to which combined media and IPC campaigns influence maternal handwashing behavior in Indonesia. While prior research has touched on these components individually, there is a need for integrated analyses that examine their combined effect. The study focuses on mothers with young children an especially critical group for public health interventions given their central role in household hygiene and childcare. Through thematic analysis of empirical studies and theoretical synthesis, the study aims to identify key drivers of behavior change and the conditions under which communication strategies are most effective.

The novelty of this study lies in its focus on the synergy between media and IPC, particularly in low-resource and semi-rural Indonesian contexts. By moving beyond assessments of media exposure or knowledge gain alone, this research investigates how different communication modes intersect to produce meaningful behavioral outcomes. The findings are intended to inform public health practitioners and policy designers seeking to create more effective, community-centered hygiene promotion strategies.

In conclusion, the persistent challenge of poor hand hygiene in Indonesia cannot be addressed through media messaging alone. While mass communication raises awareness, it is the interpersonal reinforcement of messages through dialogue, modeling, and trust that facilitates behavior change. This study argues that integrated, context-sensitive health communication approaches are necessary to shift

hygiene behaviors from knowledge to action, thereby addressing one of the most preventable contributors to disease burden in Indonesia.

METHOD

This study adopts a qualitative interpretive approach to examine the effects of combined media and interpersonal communication campaigns on maternal handwashing behavior in Indonesia. By focusing on participant experiences, behavioral context, and media exposure pathways, the study seeks to uncover how multi-modal health communication interventions shape hygiene practices. The approach is grounded in the understanding that health behavior is influenced by complex social, emotional, and environmental factors that require nuanced, context-sensitive analysis.

The primary data sources for this research consist of empirical findings from two published studies: Hanson et al. (2020), which analyzed the impact of WASH-related communication exposure on mothers with children under two years, and Hirai et al. (2016), which examined determinants of handwashing in multiple Indonesian districts. These were supplemented with qualitative thematic synthesis and conceptual interpretation. While the original studies were quantitative in nature, this article applies qualitative interpretive analysis to evaluate underlying behavioral mechanisms and communication dynamics. Additionally, hypothetical qualitative narratives were constructed to represent possible responses from mothers in semi-rural Indonesia, providing contextual depth.

Qualitative methodologies are critical in evaluating health communication campaigns, as they capture how individuals perceive, interpret, and respond to messages. Among the most effective qualitative tools for health behavior research are in-depth interviews, focus groups, and observational studies. Interviews allow researchers to collect detailed, personal narratives that shed light on the cognitive and emotional factors influencing hygiene behavior. Focus groups facilitate collective reflection and discussion, uncovering shared beliefs, social norms, and community dynamics (Douno et al., 2023). Observational techniques enable researchers to directly witness behavior in context, adding a vital layer of realism to reported practices (Gaube et al., 2020).

This study applies thematic analysis to derive insights from qualitative sources. Thematic analysis is a widely used method in health communication research that involves coding data into patterns or themes, which are then interpreted in relation to the research questions (Douno et al., 2023). This method has proven effective in evaluating knowledge, attitudes, and practices (KAP) prior to or during health intervention campaigns. For example, Tjoa et al. (2022) used thematic analysis to evaluate stakeholder perspectives on hand hygiene in healthcare environments. The use of this method in the current study enables systematic identification of recurring themes such as message reception, emotional motivators, or peer influence relevant to hygiene behavior change.

To ensure robustness, a triangulated framework is employed, integrating insights from both quantitative findings and qualitative interpretations. This mixed-methods strategy allows for a more

holistic understanding of hygiene behavior. Quantitative data provide a macro-level view of compliance rates, while qualitative data reveal the psychological, cultural, and social dimensions behind those numbers (Engdaw et al., 2019). Triangulation validates key findings through cross-method corroboration and ensures that conclusions are both empirically grounded and contextually relevant (Nicolaides et al., 2019).

Structured surveys used in the original studies offered statistical baselines, which were cross-analyzed with thematic categories from qualitative interpretations. Interviews and focus groups, although hypothetical in this study, serve as methodological illustrations of how in-depth insights might be captured in future empirical research. This combined approach is particularly valuable for health communication evaluation, as it allows practitioners to adjust messaging strategies iteratively based on real-time audience feedback (Wu et al., 2018).

Although this study does not involve original human subjects, all interpretations are grounded in peer-reviewed and ethically conducted studies, all interpretations and extrapolations are grounded in peer-reviewed and ethically conducted studies. The design emphasizes cultural sensitivity, anonymity of hypothetical participants, and responsible representation of the communities under discussion.

This methodology provides a conceptual exploration rather than empirical testing of new interventions. As such, while it draws on robust existing data and recognized qualitative methods, its findings should be seen as exploratory. The lack of direct field interviews or ethnographic engagement limits the generalizability of certain conclusions, though it offers a valuable basis for future applied research.

RESULT AND DISCUSSION

This chapter presents the core findings of the study, integrating empirical data from Hanson et al. (2020) and Hirai et al. (2016) with thematic interpretations and supporting literature. The results are structured into two key subsections: (1) the influence of media and interpersonal communication (IPC) exposure on maternal handwashing behavior, and (2) behavioral determinants affecting hygiene compliance among Indonesian mothers. Each subsection highlights the multi-layered pathways of communication and motivation that shape health behavior outcomes.

Media and IPC Exposure

Media Exposure and Health Knowledge

Media exposure, particularly in the form of public health campaigns, plays a significant role in shaping maternal health knowledge. In rural Indonesia, mothers exposed to both traditional (e.g., radio, posters) and digital media showed increased awareness of hygiene practices, including the importance of handwashing (Hanson et al., 2020; Daines et al., 2020). This exposure contributed to knowledge

development, especially when information was culturally adapted and repeated across various platforms.

Comparative Effectiveness of IPC vs. Media-Only Campaigns

The comparative analysis underscores that IPC strategies are more effective than media-only interventions in prompting actual behavior change. Media campaigns primarily serve to increase awareness, but IPC allows for personalized engagement, clarification of doubts, and contextual understanding. Direct community outreach through health workers or peer educators facilitates trust-building and enables the translation of information into action (Daines et al., 2020; Nugraha et al., 2023).

Impact of IPC Message Reinforcement on Behavior

Reinforcement through IPC significantly improves health behavior outcomes. Mothers who interacted with IPC agents were more likely to retain campaign messages, receive tailored feedback, and demonstrate consistent handwashing behavior, receive relevant feedback, and demonstrate consistent handwashing behavior. IPC provides a channel for interactive learning, allowing messages to be tailored to individual needs and socio-cultural norms (Mulokozi et al., 2021). The feedback loop established through IPC creates accountability and encourages the internalization of hygiene behaviors (Hanson et al., 2020).

Barriers in Media-Only Campaigns

Despite their reach, media-only campaigns face several barriers. Many mothers struggle to act on health messages due to low health literacy, limited access to hygiene facilities, or misunderstanding of key concepts (Fauk et al., 2022). Misinformation and the absence of real-time clarification further hinder the adoption of correct hygiene behaviors. Without the interpersonal reinforcement provided by IPC, media messages often fail to trigger sustainable behavioral shifts (Daines et al., 2020).

Table 1: Communication Exposure and Behavior Change (Hanson et al., 2020)

Exposure Type	Knowledge Score	Behavior Change (p-value)
Media Only	Moderate	Not Significant
IPC Only	High	$p = 0.009$
Media + IPC	Very High	$p < 0.001$

Only 4.79% of mothers reported handwashing at all critical moments, illustrating the limited behavioral impact of isolated media messaging.

Behavioral Determinants

Key Motivators for Handwashing

Mothers are influenced by a combination of health-related motives and social cues. The desire to protect family members from illness is a strong driver, particularly when linked to maternal caregiving roles (Ernawaty et al., 2022). Social pressure and modeling also play critical roles; observing peers or family members practicing hand hygiene reinforces the behavior within the community (Hunt et al., 2021).

Infrastructure and Accessibility Factors

Household infrastructure profoundly affects handwashing behavior. Families with access to running water, soap, and nearby handwashing stations demonstrate higher compliance rates (Nugroho et al., 2022). In contrast, structural deficits such as distant water sources or shared facilities hinder consistent hygiene practices (Yousuf et al., 2020). This environmental context often moderates the effectiveness of even the most well-designed communication campaigns.

Emotional and Aesthetic Motivators

Beyond rational health concerns, emotional and aesthetic motivators significantly influence behavior. The desire to feel clean or avoid unpleasant odors motivates mothers to engage in frequent handwashing (Lebel et al., 2022). Health campaigns that tap into these emotional drivers through imagery, narratives, and testimonials are more likely to achieve lasting behavior change (Bick et al., 2023).

Socio-Cultural Norms and Maternal Roles

Cultural expectations about cleanliness and caregiving shape how mothers perceive and practice hygiene. In many communities, handwashing is closely tied to norms around food preparation, childcare, and respectability (Cahyaningsih et al., 2022). Mothers often adopt hygiene behaviors not just for health reasons but to fulfill culturally defined roles and responsibilities. This underscores the importance of culturally grounded messaging and local community engagement in campaign design.

Table 2: Behavioral Drivers and Handwashing Prevalence

Measure	Prevalence (%)
Composite HW Compliance	55.7
After Defecation	26.7
Motivation: Pleasant Smell	75

Measure	Prevalence (%)
No Stated Motivation	51.3

In summary, this chapter illustrates that effective handwashing promotion among Indonesian mothers relies not only on message delivery but also on how those messages are contextualized, reinforced, and supported by environmental and cultural factors. The combination of media and IPC offers the highest potential for driving sustained hygiene behavior change.

The findings of this study underscore the effectiveness of integrating media campaigns with interpersonal communication (IPC) strategies to promote maternal handwashing behavior in Indonesia. These results are not only empirically significant but also align with established behavior change theories such as Social Cognitive Theory (SCT) and the Health Belief Model (HBM). SCT posits that behavior change is a function of reciprocal interactions between cognitive, behavioral, and environmental influences. Within this framework, the combination of media and IPC provides observational learning and modeling opportunities that enhance individuals' confidence in adopting new behaviors particularly through role models and community figures who demonstrate desired hygiene practices (Pereira, 2020). Media provides initial exposure and creates awareness, while IPC reinforces that exposure through culturally contextualized interactions that build trust, clarify misconceptions, and foster self-efficacy. This dual-pathway mechanism increases the likelihood of behavior adoption, especially in semi-rural communities where trust in interpersonal sources often surpasses trust in abstract media messages.

Moreover, the Health Belief Model supports the notion that perceived benefits, perceived barriers, and cues to action are essential to changing behaviors. While media may serve as a cue to action and elevate perceived susceptibility to disease, IPC helps reduce perceived barriers by allowing two-way communication where questions can be addressed in real time (Moran et al., 2021). For instance, while a radio advertisement may raise awareness about hand hygiene, it is often the IPC component through a midwife, community health volunteer, or peer group that translates that awareness into sustained practice. This dynamic mirrors recent public health communication trends that emphasize layered messaging and participatory approaches as critical to campaign success.

Emotional and social motivators also emerged as critical drivers of hygiene behavior. Emotional appeals whether grounded in fear of disease or the positive feelings associated with cleanliness enhance message salience and retention (Booker et al., 2022). Campaigns that evoke emotional responses, such as concern for a child's health, are often more successful in catalyzing behavioral shifts. In the Indonesian context, the emotional desire to protect family and avoid embarrassment due to poor hygiene plays a pivotal role. These motivators work hand in hand with social influences. As seen in this study, social motivators such as peer behaviors and community norms significantly impact handwashing compliance. When individuals observe others within their network engaging in hygienic practices especially figures with social capital behavioral modeling takes place, reinforcing the perception that the practice is not only beneficial but expected (Markelz et al., 2024). This is in line

with the Theory of Planned Behavior, which emphasizes the role of subjective norms in shaping intentions and behaviors (Latifi et al., 2017).

The implications of these findings extend beyond the Indonesian setting. Many low- and middle-income countries (LMICs) face similar challenges regarding hygiene compliance, limited access to infrastructure, and low health literacy. The Indonesian model, which combines traditional media outreach with community-based IPC interventions, provides a replicable framework for other LMICs. As Paulo et al. (2023) note, leveraging local narratives and integrating digital tools with traditional modes of communication enhances the cultural relevance and acceptability of public health campaigns. In contexts where infrastructure or digital access is limited, interpersonal engagement serves as a bridge that connects public health messaging to lived realities. Moreover, behavioral drivers identified in Indonesia such as emotional incentives, social modeling, and contextual understanding are widely applicable and adaptable to diverse cultural environments.

Importantly, the integration of IPC into large-scale health campaigns is not merely additive; it transforms the campaign from a unidirectional to a dialogical model. This transformation has significant implications for designing participatory public health campaigns. First, IPC allows for immediate clarification and dynamic message reinforcement, which addresses issues of misunderstanding or passive reception common in media-only campaigns. Second, IPC enables community-level feedback loops that can inform real-time campaign adjustments, ensuring cultural sensitivity and responsiveness (Zheng et al., 2023). Lastly, the dual-strategy approach promotes not only individual behavior change but also the establishment of collective norms that contribute to sustained health improvements. Latifi et al. (2017) and Kebede et al. (2024) emphasize that such integration supports both top-down and bottom-up strategies, making it a robust framework for long-term public health interventions.

In summary, the convergence of media and IPC in health communication campaigns offers a synergistic model for promoting hygiene behavior. Media provides scale and reach, while IPC delivers depth, trust, and context. This combination addresses both the informational and relational dimensions of behavior change, fostering an environment where individuals are both aware and empowered to act. In Indonesia and similar settings, this dual-channel strategy is not only effective but essential for addressing complex, culturally embedded health behaviors such as handwashing.

CONCLUSION

This study demonstrates that integrating media campaigns with interpersonal communication (IPC) strategies significantly enhances maternal handwashing behavior in Indonesia. Media exposure effectively raises awareness and serves as a cue to action, yet it is interpersonal engagement that transforms knowledge into consistent practice. Through IPC, messages are contextualized, clarified, and reinforced within culturally relevant and trust-based interactions, leading to sustained behavioral adoption.

The findings emphasize that emotional and social motivators such as maternal concern for child health, social modeling, and community norms play pivotal roles in influencing hygiene behavior. When these motivators are integrated into campaign design, health messages gain emotional resonance and social validation, fostering both personal responsibility and collective adherence. The synergy between media and IPC thus offers not merely an additive but a transformative communication model that aligns awareness, motivation, and social reinforcement.

In conclusion, sustainable hygiene improvement requires health campaigns that combine broad media reach with the depth of interpersonal interaction. For low- and middle-income contexts like Indonesia, this dual-channel approach is essential for addressing cultural and structural barriers to health behavior compliance. Future research should expand on this framework through community-based qualitative studies to refine adaptive, participatory communication strategies that ensure both reach and relevance across diverse populations.

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