LIFE UNDER THE BUZZ: UNCOVERING THE LIVED EXPERIENCES OF RESIDENTS IN MOSQUITO-PRONE COMMUNITIES

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Abstract

Mosquito-borne diseases, such as dengue, continue to pose significant health risks in tropical communities where residents are constantly exposed to mosquitoes. This qualitative study aimed to explore the lived experiences of individuals residing in a mosquito-prone area and identify the preventive measures and solutions they employ to mitigate health risks and daily discomfort. Using a phenomenological research design, seven participants were purposively selected and interviewed through semi-structured, one-on-one interviews guided by a validated protocol. Data were analyzed using a thematic analysis approach. Findings revealed five major themes: (1) Living with Constant Vigilance, (2) Bearing Emotional and Physical Weight, (3) Hoping for Better, Together, (4) Everyday Protective Actions, and (5) Community and Environment Efforts. The study concludes that addressing mosquito-borne health risks requires both empowering individual protective strategies and supporting broader community and policy-level interventions. It recommends future multi-site or longitudinal studies, as well as stronger collaboration between barangay leaders and academic institutions, to co-develop sustainable, low-cost solutions tailored to community realities.

Keywords: *buzzing threat, community resilience, dengue fear, mosquito defense, survival strategies*

1.0 INTRODUCTION

As senior high school students, the researchers frequently experienced the discomfort and distraction caused by mosquito bites in their mosquito-dense classroom, which often disrupted their concentration and daily routines. Upon learning about the persistent rise in dengue cases in Cagayan de Oro City from local news reports, they were compelled to conceptualize this study to explore how people like them cope with

the daily realities of living in mosquito-prone communities.

Mosquitoes are small insects, but they cause significant problems worldwide. More than 700,000 people die each year from diseases carried by such as dengue fever, malaria, Zika virus, and chikungunya mosquitoes (WHO, 2024; UNDRR, n.d.), These diseases affect millions of people (Deng, Khater, Tambo, & Wang, 2023), especially those living in tropical and subtropical countries where the weather is warm and humid most of the year (Salas, 2025). Because of this, mosquitoes are not just everyday pests—they are dangerous carriers of disease.

Dengue fever is one of the most common mosquito-borne diseases, and it affects nearly half of the world's population. As of April 30, 2024, more than 7.6 million dengue cases have been reported to the World Health Organization (WHO), including 3.4 million confirmed cases, over 16,000 classified as severe, and more than 3,000 recorded deaths (WHO, Dengue - Global situation, 2024). This disease is mainly transmitted by the Aedes aegypti mosquito, which is often called the "cockroach of mosquitoes" because it can survive and multiply in crowded urban areas (WHO, Dengue and severe dengue, 2024). Its ability to live close to people makes it harder to control and increases the risk of outbreaks in cities.

In the Philippines, dengue has been a significant health problem for many years. Salazar and Gimutao (2018) explain that the country is "hyperendemic" for dengue, meaning all four types of the dengue virus are circulating simultaneously. From January 1 to June 17, 2023, a total of 72,333 dengue cases were reported (Maru, D, 2023). For the full year of 2022, the Philippines recorded 252,700 dengue cases. The reported 14% increase likely refers to a particular regional comparison or a specific time (not detailed in the sources), as the total number of dengue cases for the full year 2023 (195,603 cases as of December 2, 2023) was 23% lower compared to the 2022 total (Cordero, 2024). In Cagayan de Oro City, the City Health Office (CHO) (Rosete, 2023)reported 1,965 dengue cases. These numbers illustrate the severity of the problem and underscore the need for urgent attention.

To help prevent the spread of mosquito-borne diseases, many experts recommend using repellents

and implementing effective mosquito control methods. Traditional insecticides and electric bug zappers are not only less effective today but also harmful to the environment (Bug Zappers, 2020). This is why natural alternatives, such as citronella oil, are being studied more (Halim, lesmana, & Sitepu, 2021). According to Eden et al. (2020), citronella oil has been approved by the U.S. Environmental Protection Agency as a mosquito repellent because of its low toxicity and effectiveness.

While the development of technologies and products is essential, it is equally crucial to understand how people experience life in areas prone to mosquitoes. Toan, Hoat, Hu, Wright, and Martens (2014) conducted a study in Vietnam that examined risk factors, including housing conditions and water storage, but did not explore how individuals felt about living in these conditions. Similarly, Selvarajoo et al. (2020) investigated community knowledge and attitudes about dengue in Malaysia but did not deeply examine how environmental and social factors shape people's daily experiences. In the Philippine context, Tan and Blas (2024) focused on the implementation of Integrated Vector Control (IVC) among Barangay Health Stations, while Edillo et al. (2022) studied the influence of altitude and temperature on mosquito populations across Luzon, Visayas, and Mindanao. However, these studies did not examine the human side of the issue—how people cope with mosquitoes, the concerns they face, and the everyday challenges they encounter. There remains a lack of sufficient literature that explores people's daily experiences with mosquitoes, and only a few studies have addressed how these experiences affect their overall well-being.

Although numerous studies have been conducted on mosquito-borne diseases, most focus on biological factors or community knowledge, overlooking the essential human experiences of individuals who live with daily mosquito threats. Without understanding these lived experiences, public health programs and mosquito control efforts may miss what people need or care about most (Paz-Soldan et al., 2016). This gap in the research highlights the need for studies that examine the emotional, social, and practical aspects of

people's lives in areas prone to mosquito infestations. We need to know: How do people feel about the risks? What coping strategies do they use? Do they feel supported by their communities or governments? Addressing these questions can lead to more effective and meaningful interventions (Samsuddin et al., 2018).

To fill this gap, the study used a phenomenological approach. Phenomenology is a type of qualitative research that focuses on understanding people's lived experiences from their perspectives (Creswell & Poth, 2018). By using this method, we aim to capture the deeply personal stories of individuals living in areas prone to mosquito infestations, including their fears, frustrations, hopes, and coping mechanisms. To address the identified gap, this study aims to answer the following research question: What are the lived experiences of individuals residing in high-risk areas for mosquito-borne diseases? Through this study, the researchers aim to provide insights that can inform the development of more human-centered and practical mosquito control strategies.

2.0 METHODOLOGY

Research Design

This study employed a phenomenological research design to explore and understand the lived experiences of residents in Barangay Lapasan, Cagayan de Oro City, who reside in areas prone to mosquito infestations. Phenomenology is a qualitative research approach that focuses on describing how individuals experience a particular phenomenon and how it presents itself through their perceptions (Sokolowski, 2000). This design was chosen because it enables us to thoroughly examine the personal experiences, meanings, and interpretations of individuals who face daily exposure to mosquito-related risks.

Participants

The participants for this study consisted of residents living in identified mosquito-prone areas within Barangay Lapasan. A total of seven participants were selected using purposive sampling. This sampling method involves selecting individuals who meet specific criteria relevant to the research questions

and are believed to provide rich, detailed information about the phenomenon under investigation. Purposive sampling was appropriate because it ensured the inclusion of participants with varied but meaningful perspectives on living with mosquitoes (Hassan, 2023). To ensure that only qualified participants were selected for the study, the researchers established explicit inclusion and exclusion criteria. Participants must be of legal age and have been residents of Barangay Lapasan—a barangay in Cagayan de Oro City identified by the City Health Office as highly affected by mosquito-borne diseases—for at least one year. This length of residency ensures that participants have experienced the locality's mosquito-related challenges across different seasons. Individuals who are transient residents, such as those staying temporarily for vacation or short visits, were excluded from the study. Table 1 presents the demographic profile of the study participants.

Data Collection Tools

In qualitative research, the researcher is considered the primary instrument for gathering, interpreting, and analyzing data, recognizing that human experiences are inherently subjective and must be understood through immersion in the research setting (Creswell & Poth, 2025). For this study, the researchers developed an interview protocol to guide the conduct of one-on-one, semi-structured interviews. To ensure the clarity, relevance, and effectiveness of the questions, the interview protocol underwent expert validation by three specialists—one each in content expertise, research methodology, and language. This validation process is crucial to ensure the questions align with the research objectives and to maximize the depth and relevance of the data gathered within the interview period (Patton, 2015).

Data Collection Procedure

Before conducting the interviews, the researchers secured informed consent from all participants. Each participant was given a formal letter of intent, signed by the research professor, which clearly outlined the study's purpose, procedures, and ethical considerations. Once permission was obtained, the

researchers worked to establish rapport with the participants, fostering trust and encouraging open and detailed sharing of experiences, as suggested by Lincoln and Guba (1985).

The interviews were conducted in the local dialect to encourage natural and spontaneous conversations, enabling both participants and researchers to express their thoughts more freely. With the participants' consent, the interviews were audio-recorded to minimize interruptions from note-taking and to maintain the smooth flow of dialogue. Participants were assured that all recordings would be permanently deleted from the researchers' mobile devices once the data had been fully transcribed.

Furthermore, the participants were also assured that their identities would remain anonymous and that any personal information shared would be treated with strict confidentiality. They were informed that the results would reflect collective themes from all participants, not individual accounts, and that they had the right to withdraw from the study at any point if they felt uncomfortable. Data collection took place in April 2024 in Barangay Lapasan, a location identified by the City Health Office as a hotspot for mosquito-borne diseases. The ethical principles guiding this process aligned with the trustworthiness criteria outlined by Lincoln and Guba (1985).

Data Analysis

After the interviews were completed, the audio recordings were carefully transcribed into text form. Following the recommendation of Point and Baruch (2023), the transcripts were then translated into English to allow for detailed thematic analysis. The researchers employed the six-phase approach to thematic analysis proposed by Braun and Clarke (2022), which followed a systematic step-by-step process throughout the study. Initially, the researchers carefully read and reviewed all interview transcripts, identifying and extracting narratives that were most relevant in addressing the study's central research question. During the coding process, each of these selected narratives was assigned a code that represented its core meaning. These codes served as condensed interpretations of the participants' lived

experiences and responses. It is essential to note, however, that the researchers coded the narratives individually and subsequently discussed which codes were most suitable for use in the study.

Once all appropriate narratives were coded, the researchers examined the codes for patterns, similarities, and shared ideas. Codes that conveyed related or connected meanings were then grouped to form categories, each of which captured a specific aspect of the participants' experiences. These categories were not formed arbitrarily but were grounded in the textual data and reflective of recurring perspectives and sentiments.

Finally, to construct a broader understanding of the phenomenon under study, the researchers clustered related categories into overarching themes. These themes served as the highest level of abstraction in the analysis, providing a cohesive framework that encapsulated the lived experiences, coping mechanisms, and aspirations of residents residing in mosquito-prone areas. This analytical process, from coding to categorizing to theme-building, was guided by the principles of phenomenological research, aiming to uncover the deeper meanings embedded in the daily realities of the participants.

3.0 RESULTS AND FINDINGS

Problem 1: The lived experiences of individuals living in high-risk mosquito-borne disease areas

The thematic analysis of the residents' narratives revealed three interconnected themes: (a) Living with Constant Vigilance, (b) Bearing Emotional and Physical Weight, and (c) Hoping for Better, Together, that collectively describe how individuals experience daily life in mosquito-prone environments.

Theme 1: Living with Constant Vigilance

The first theme, Living with Constant Vigilance, describes how residents' daily routines are shaped by continuous efforts to defend themselves against mosquitoes. Simple actions, such as wearing protective clothing, swatting insects, using electric fans, and regularly cleaning, are not mere chores but embodied acts of survival. Creswell and Poth (2025) explain that, in phenomenology, meaning

arises not from isolated events but from how individuals live through and experience those events within their context. The residents' acts of vigilance represent more than mosquito prevention—they reflect a lived state of hyper-awareness, where the threat of mosquito intrusion conditions personal spaces and bodily movements.

The residents shared how their daily routines are shaped by constant vigilance against mosquitoes. P3 explained, *"I wear clothes that are not open since I am using an electric fan, it is okay,"* suggesting that clothing choices also serve as protection. P4 added, *"Usually, we stay under the breeze of the electric fan so that the wind from the fan can scare away the mosquitoes,"* emphasizing how even simple appliances become defensive tools. During the evenings, P1 and P2 said, *"We use that swatter to get rid of them,"* and P6 affirmed, *"Of course, we use this (swatter) during the evening,"* portraying a nightly ritual of swatting.

Beyond bodily protection, maintaining the household becomes an act of survival. As P3 shared, *"And we clean the house always, morning, afternoon, and night,"* a practice echoed by P4, who advised, *"Always clean your surroundings so it would not be filled with trash because it is one of the living sites of mosquitoes."* P1 and P2 also emphasized environmental upkeep: *"The number one priority must be cleaning the canals,"* and warned about breeding grounds by saying, *"The surroundings should be kept clean, and the stocked water should be kept away as they may become breeding grounds."*

These narratives illustrate how individual, household, and community-level actions are tightly interwoven in the participants' daily lives, highlighting the multiple layers of vigilance required to maintain a sense of normalcy. According to the Ecological Model (McLeroy, Bibeeau, Steckler, & Glanz, 1988), health behaviors are influenced by factors at the intrapersonal, interpersonal, organizational, community, and policy levels. Residents in this study exhibit behavioral responses (e.g., the use of clothing and fans), interpersonal reinforcement (e.g., shared cleaning duties), and community-level strategies (e.g., canal clearing) that exemplify ecological interactions across various levels. At the same time, the continuous enactment of these routines signifies the development of community

resilience, defined by Farny and Dentoni (2025) as a set of adaptive capacities that enable individuals and communities to endure and recover from stressors. These acts of vigilance serve not only as preventive mechanisms but also as forms of agency and adaptation in a chronically hazardous setting.

Theme 2: Bearing Emotional and Physical Weight

The first theme directly feeds into the second theme, which is Bearing Emotional and Physical Weight. The residents' physical acts of protection are closely tied to the psychological burden they carry: irritation from constant bites, frustration over interrupted sleep, and a looming sense of vulnerability to diseases like dengue.

The participants of the study quietly carry the emotional and physical toll of daily exposure. *"I feel irritated, especially after seeing the mosquito bites I have when I wake up,"* shared P1 and P2, pointing to a sense of bodily invasion that starts the day with discomfort. For P3, the experience is exhausting: *"Emotionally, it is a hassle. Like, I would get frustrated because it is tiring,"* while P4 echoed, *"It can be frustrating. It is annoying."* The toll does not end with annoyance. *"I feel stressed because I cannot sleep,"* admitted P1&2, who added, *"Since my first night here, I find it hard to sleep,"* revealing the quiet suffering of sleepless nights. Beneath these emotions lies a more profound fear: *"Contracting the dengue virus,"* said P1 and P2, while P3 revealed, *"My dad is starting to worry if we might be infected with dengue."*

Limited resources compound their anxiety, as P3 lamented, *"The Baygon will be consumed too… the smell can be damaging… There are risks of fire… and if you buy Baygon as well, it is expensive."* P4 confirmed, *"Not a lot can afford it… not everyone has access."* For many, protection is fragmented and temporary—*"The katol is only used for a short-term,"* P3 admitted, exposing the harsh reality that while the threat of mosquito-borne diseases persists, the tools to fight them are often insufficient, short-lived, and financially burdensome.

Like findings by Castro et al. (2019) in Peru, where caregivers felt powerless in the face of dengue outbreaks, the Lapasan residents describe a background emotional strain. This persistent, low-level anxiety shapes their sense of

well-being(Abidin, Rahsdi Abd Patah, Abdul Majid, Usman, & Luqmanul, 2024). Highlight that understanding trustworthiness in qualitative research involves acknowledging the intertwined emotional and physical dimensions that residents express, both explicitly (frustration, stress) and implicitly (tiredness, quiet suffering).

Theme 3: Hoping for Better, Together

The third theme, Hoping for Better, Together, connects individual struggles to broader communal and societal aspirations. While residents use personal strategies to cope, they also express a longing for affordable, sustainable solutions and collective improvements in infrastructure, technology, and public awareness.

Amid the daily discomfort and health threats posed by mosquitoes, the participants hold tightly to dreams of affordable and lasting solutions. *"It would be better if you could find a certain alternative that is not pricey but at the same time effective,"* shared P3, while P1 and P2 added, *"Something that is not complex to use and is within the budget."* P4 envisioned a more hands-on approach: *"Hopefully, it can be cheaper, or they can make something out of DIY,"* an idea reinforced by P5, who noted, *"Our main ingredient is citronella oil,"* referring to their skin-shield products. These hopes are not limited to homemade solutions—residents also look to technology for support. *"When it comes to technology, ma'am, it would be helpful,"* said P6, with P4 imagining *"gadgets that can shoo away mosquitoes… like a light."* Their vision extends beyond the home, as P4 emphasized the need to *"raise awareness through social media,"* turning everyday digital spaces into platforms of empowerment. At the structural level, P3 suggested, *"It is helpful, but like, it has to be properly made,"* referring to urban planning improvements. At the same time, P4 supported the idea of *"clean-up drives,"* alongside P5, who insisted, *"You have to start with the basic one, cleanliness."* Together, these voices form a story not just of survival, but of collective hope—for innovations they can afford, environments they can manage, and communities they can mobilize.

The narratives of the participants align with the findings of Chandren, Wong, and Abubakar (2015), who

demonstrated that while individuals in Malaysia were aware of dengue risks, they sought stronger community-level and structural interventions to complement their efforts. In Lapasan, the participants' narratives reveal a sense of shared struggle and shared hope: they do not see their mosquito problem purely as a private inconvenience but as a public issue requiring collective action and systemic change.

Theme 4: Community and Environmental Efforts

The participants also acknowledge the limitations of these personal measures, noting that repellents wear off, coils only provide short-term relief, and swatting is labor-intensive and incomplete. This awareness naturally leads into the second theme, Community and Environmental Efforts, which captures residents' recognition that mosquito control is not only an individual problem but a collective one. Participants stress the importance of maintaining clean surroundings, removing stagnant water, cleaning canals, and organizing clean-up drives. They also express a strong desire for affordable innovations, improved infrastructure, technological solutions, and more widespread public awareness campaigns.

The participants are not only responding to mosquitoes with personal defense. Still, they are also engaging in community and environmental efforts that reflect a collective resilience. P1, P2, P3, and P4 all emphasized "cleaning surroundings" as a fundamental daily activity—more than a routine, it is a commitment to reclaiming livable space. P1&2 detailed how they "clear the canals" and "remove stagnant water" as acts of environmental stewardship that aim to cut off mosquito breeding at the source. However, these efforts are not solely dependent on labor but also on ingenuity. P4 expressed hope in "DIY affordable solutions," a sentiment echoed by P5, who proudly mentioned the use of "citronella oil" in homemade skin protection products.

While these resourceful solutions reflect agency, residents recognize the limitations of individual action and call for structural support. P4 suggested "raising awareness through social media," transforming digital tools into platforms for education and solidarity.

Meanwhile, P3 and P4 highlighted the need for "*urban planning improvements,*" such as proper drainage and ventilation, and P6 and P4 advocated for "*gadgets and technology*" that could offer practical, accessible mosquito deterrents.

These themes emphasize that while personal measures help residents cope on a moment-to-moment basis, they understand that long-term, meaningful reduction of mosquito risks requires larger-scale solutions. This aligns with findings by Chandre et al. (2015) in Malaysia, where individual preventive actions were every day, but residents emphasized the need for community-level support and government-driven interventions. Similarly, Paz-Soldan et al. (2016) argue that effective vector control depends on integrating personal, environmental, and social responses, as mosquitoes breed in environments shaped by both human behavior and public infrastructure.

4.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined the lived experiences of residents in Barangay Lapasan, a community prone to mosquito infestations in Cagayan de Oro City. It examined the preventive measures and solutions they have implemented to address the health risks and daily discomfort caused by mosquitoes. The findings revealed that residents live in a constant state of vigilance, where everyday activities such as wearing protective clothing, cleaning their surroundings, and using swatters or repellents become meaningful acts of survival. Their daily existence is marked not only by physical efforts but also by emotional burdens—feelings of frustration, sleeplessness, and persistent worry about mosquito-borne diseases, such as dengue. These experiences underscore how life in a mosquito-threatened environment influences residents' perceptions of safety, health, and resilience, profoundly affecting their overall well-being.

In response to these challenges, residents actively apply both personal and household-level protective measures while expressing a strong desire for broader community and systemic solutions. While they rely on accessible tools such as coils, repellents, and citronella

oils, they also emphasize the importance of environmental cleanliness, collective clean-up drives, affordable innovations, and urban planning improvements to achieve long-term mosquito control. Ultimately, this study concludes that addressing mosquito-borne health risks in communities like Barangay Lapasan requires not only empowering individuals with preventive strategies but also engaging community efforts and policy-level interventions. By centering the voices and lived realities of affected residents, future programs and solutions can be better tailored to meet both their immediate needs and their deeper hopes for a safer, healthier living environment.

Notably, however, this study has several limitations. This study was limited to seven purposively selected residents of Barangay Lapasan, Cagayan de Oro City, which restricts the generalizability of findings to other contexts. As a qualitative study, the results reflect subjective experiences that may vary across individuals and communities. The translation of interviews from the local dialect to English may have also resulted in a slight loss of meaning. Lastly, the study did not include perspectives from local officials or health professionals, which could have provided a more holistic view of the issue.

Recommendations

This study recommends the following, based on its findings and limitations.

For Barangay Lapasan and its residents, we recommend that the barangay officials set up a simple reporting system where residents inform local health workers about areas with dense mosquito populations or frequent complaints of bites. This may help map out local hotspots and guide targeted clean-up and fogging efforts. In addition, it is also recommended that monthly community clean-ups be conducted, with a primary focus on canals and stagnant water, and that a barangay ordinance be implemented, such as penalizing improper waste disposal or neglect of breeding grounds. Incentivize household participation with small rewards (e.g., community recognition, certificates).

For academics, we recommend that Universities organize student and faculty teams (e.g., from public health,

biology, environmental science, or social work programs) to co-design sustainable mosquito control innovations with residents, such as low-cost mosquito traps or homemade repellents. In addition, through extension offices, universities can run workshops teaching residents how to make affordable, natural repellents (such as citronella-infused products), thereby maximizing local resources and reducing dependence on expensive commercial products.

Finally, for future studies, since this study was limited to a small number of participants in Barangay Lapasan, researchers may consider conducting a multi-barangay or city-wide qualitative study to compare lived experiences across different mosquito-prone communities. Alternately, to complement the rich, detailed qualitative data, future studies could integrate surveys or quantitative assessments (e.g., measuring mosquito density, tracking dengue case rates) to cross-validate and strengthen findings.

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Appendix

Table 1. *Narratives, Codes, Categories, and Themes Capturing the Experiences of Residents Living in Mosquito-Prone Areas*

Narratives/Codes	Categories	Themes
Protective clothing as armor (P3: wearing closed clothes)	Embodied	Theme 1: Living with Constant Vigilance
Feeling the fan's breeze as a shield (P3, P4: relying on electric fan)		
Holding the swatter as a defense tool (P1&2, P6: swatting at night)		
Daily cleaning as ritual (P3, P4, P1&2: cleaning surroundings)	Maintaining the Space of Survival	
Clearing canals as community duty (P1&2: cleaning waterways)		
Preventing water collection as vigilance (P1&2: removing breeding water)		
Irritation as emotional erosion (P1&2: feeling irritated from bites)	Emotional Wear and Tear	Theme 2: Bearing Emotional and Physical Weight
Frustration as daily burden (P3, P4: describing hassle and annoyance)		
Sleeplessness as quiet suffering (P1&2: difficulty sleeping)		
Dengue as a shadow of fear (P1&2, P3: fear of dengue)	Living with Health Uncertainty	
Health costs as sacrifice (P3, P4, P1&2: noting expensive repellents and care)		
Health protection as incomplete (P3: noting short-term fixes and risks)		
Dreaming of low-cost options (P3, P4, P1&2: budget-friendly solutions)	Aspirations for Affordable Solutions	Theme 3: Hoping for Better, Together
Imagining DIY or homemade alternatives (P4, P5: DIY mosquito repellents)		
Desiring accessible technology (P6, P4: innovative gadgets and tools)		
Raising awareness as empowerment (P4: using social media for education)	Collective Hope for Community Change	
Improved urban planning as shared vision (P3, P4: better community structures)		
Clean-up drives as shared responsibility (P4, P3, P5: communal efforts)		
Narratives/Codes	Categories	Themes
Covered clothing use (P3: wearing closed clothes)	Personal Defense Practices	Theme 4: Everyday Protective Actions
Electric fan use (P3, P4: relying on fan breeze)		
Swatting at night (P1&2, P6: using mosquito swatter)		
Bathing to cool (P3: bathing to prevent sweat)		
Applying repellents (P1&2, P4, P6: using mosquito repellent or oils)	Chemical and Natural Repellents	
Burning "katol" coils (P1&2, P3, P6: using mosquito coils)		
Using citronella oils (P5: citronella in lotions/oils)		
Cleaning daily (P3, P4, P1&2: cleaning surroundings)	Environmental Management	Theme 5: Community and Environmental Efforts
Clearing canals (P1&2: cleaning waterways)		
Removing stagnant water (P1&2: removing breeding water)		
DIY affordable solutions (P4, P5, P3: wanting low-cost, homemade alternatives)	Community Innovation and Awareness	
Raising awareness online (P4: using social media for education)		
Urban planning improvements (P3, P4: improving infrastructure, ventilation)		
Gadgets and technology (P4, P6: developing portable, electric mosquito devices)		