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Barangay Officials' Role in Fire Safety: Understanding and Implementation

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Abstract. Despite the Bureau of Fire Protection (BFP) establishing a standardized community-based fire protection plan known as Oplan Ligtas na Pamayanan (OLP), a critical gap remains in understanding how barangay officials comprehend their roles and how this understanding influences the effectiveness of OLP implementation. Addressing this gap is essential for enhancing community fire safety outcomes. This study investigated the level of understanding of OLP roles among 300 barangay officials in a component city and examined the correlation between this understanding and the extent of OLP implementation. Utilizing a descriptive-correlational design and a researcher-made questionnaire, participants were selected through stratified random sampling. Statistical analyses included mean, standard deviation, frequency, Mann–Whitney U test, Kruskal–Wallis test, and Spearman's Rho correlation. Results revealed that barangay officials exhibited high comprehension of General Awareness of OLP (M=3.55) and Application of OLP Principles (M=3.63), but only moderate Knowledge of OLP Components (M=3.46). Educational attainment had a significant influence on understanding, with college graduates outperforming their high school counterparts ($p = 0.004$). Variations in comprehension were also significant across different roles and experience durations (all $p<0.05$). Implementation levels varied among OLP programs, with the Lingap Program scoring the lowest (M = 3.39). Significant barriers included limited access to fire prevention equipment (57%), community reluctance to participate in drills (44.3%), and insufficient funding (42.7%). Importantly, a strong positive correlation ($\rho = 0.826$, $p < 0.01$) was found between officials' understanding of their roles and the effectiveness of OLP implementation. These findings underscore the urgent need for targeted, modular training; improved resource allocation; inter-agency collaboration; and community engagement strategies to bridge existing gaps and enhance the OLP's impact on local fire safety.

Keywords: Barangay officials; Disaster preparedness; Implementation challenges; Oplan Ligtas na Pamayanan; Community fire safety.

1.0 Introduction

Despite the establishment of standardized community-based fire protection plans by the Bureau of Fire Protection (BFP), a notable gap remains in the scholarly understanding of how the specific knowledge and comprehension of barangay officials directly influence the effectiveness of program implementation. While previous studies have evaluated the general success of fire safety initiatives and the role of local participation (Brennan et al., 2022), few have systematically examined the mechanisms by which officials' understanding of Oplan Ligtas na Pamayanan (OLP) roles translates into practical outcomes at the community level. Recent research has tended to focus on

program outputs or community engagement metrics, often overlooking the pivotal link between officials' internalization of policy frameworks and the actual efficacy of fire safety interventions in local government settings.

Recent studies have highlighted persistent challenges in community-based fire safety programs, including resource constraints, inconsistent training, and varying degrees of community engagement (Ferrer, 2021; Gandia, 2008). However, these works primarily assess program reach or community perceptions, offering limited insight into how the depth of officials' understanding affects program delivery and resilience outcomes. For instance, while Ferrer (2021) documents high ratings for fire prevention programs in some municipalities, the literature seldom interrogates whether these outcomes are rooted in officials' knowledge or other contextual factors. This omission is critical, as emerging evidence suggests that the effectiveness of disaster preparedness hinges not only on community participation but also on the technical and procedural knowledge of local leaders (Paton, 2003; UNISDR, 2015).

Abdul and Gandawali (2022) demonstrate a significant relationship in their study between the implementation of the Oplan Ligtas na Pamayanan Program and the respondents' awareness of fire prevention. Thus, an enhancement program was developed to improve and support the current fire prevention program. Additionally, it reveals a significant relationship between the level of implementation and the level of awareness of the fire prevention program. Thus, this reflects that the implementation of the Oplan Ligtas na Pamayanan Program has a positive impact on the respondents' awareness of fire prevention.

Examining the efficiency, satisfaction, and difficulties of the Bureau of Fire Protection's (BFP) Oplan Ligtas na Pamayanan (OLP) program in several Baguio City barangays is the primary goal of another study by Madriaga (2024). Using a qualitative research approach, the study gathered information from barangay officials, BFP staff, and community people participating in the OLP program through surveys and interviews. The results show a grand mean of 3.35 for the OLP program, indicating an overall satisfaction rating of "very satisfied". Additionally, the program is evaluated as "very much implemented," suggesting that community outreach and education regarding fire safety are successful. Significant obstacles are noted in the study, including low community involvement (11%), a shortage of personnel (11%), and inadequate finances (78%).

The study by Muico et al. (2024), which yielded high mean values across all indicators, underscores the community's commitment to fire safety, with residents demonstrating a proactive approach to understanding, implementing, and raising awareness about safety measures. These findings align with Scott (2015), emphasizing the importance of community-wide awareness and active participation in preventing fire incidents. The residents' keen attention to community safety, procedures, and awareness reflects a positive and engaged approach toward fire safety measures, showcasing the effectiveness of educational programs and interventions.

The increasing frequency and severity of fire incidents in the Philippines have prompted the BFP to launch Oplan Ligtas na Pamayanan in 2018, aiming to strengthen local fire protection through hazard analysis, contingency planning, and rapid response strategies. This initiative underscores the essential role of barangay officials as both policy implementers and community mobilizers. However, disparities in program implementation persist, often attributed to uneven understanding of roles, resource limitations, and varying levels of community cooperation. Bridging this gap requires not only robust policy frameworks but also a nuanced appreciation of how local officials interpret and operationalize their responsibilities within OLP.

Understanding the relationship between barangay officials' comprehension of OLP roles and the effectiveness of program implementation is vital for enhancing disaster preparedness and fostering community resilience. By illuminating this link, the present research aims to inform capacity-building strategies, guide policy reforms, and support the development of targeted training interventions that empower local leaders. Ultimately, strengthening the knowledge base of policymakers and implementers can lead to more consistent, effective, and sustainable fire safety outcomes at the grassroots level. This study specifically aims to: assess the level of understanding of Oplan Ligtas na Pamayanan roles among barangay officials in a component city; determine the extent to which this understanding correlates with the effectiveness of OLP implementation across its key programs; and identify challenges that hinder both knowledge and practical application of fire safety initiatives at the barangay level. By addressing these objectives, the research seeks to fill a critical gap in the literature and provide evidence-based recommendations for practitioners, policymakers, and scholars engaged in community disaster risk reduction.

2.0 Methodology

2.1 Research Design

This study used a descriptive-correlational design to examine population characteristics (educational attainment, position, length of service, and length of involvement) and relationships between key variables. It assessed participants' understanding of OLP in terms of general awareness, knowledge of its components, and application of its principles. It also evaluated implementation through four programs: Handang-Pamayanan Program, Bayanihan Program, Kaagapay Program, and Lingap Program. This was complemented by a correlational design, which explores the challenges encountered in implementing OLP and proposes appropriate outputs based on the insights of the participants. This design aligns with the approach used by Cortez (2022), who emphasized the value of combining statistical and thematic data in evaluating community-based disaster programs. Finally, the study examined the relationship between the level of understanding of the roles and the extent of program implementation.

2.2 Research Participants

The study population consisted of 1,194 incumbent barangay officials, including those in both elected and appointed positions, in a Philippine component city. 300 officials selected via stratified random sampling (Yamane's formula, 95% CI) to ensure representation across roles (Barangay Captain, Barangay Kagawad, Sangguniang Kabataan Chairman, Sangguniang Kabataan Kagawad, Barangay Secretary, Barangay Treasurer, Lupon, Barangay Tanod, Barangay Health Worker, Barangay Nurse, and VAWC Focal Person). Randomization for maintaining the integrity and validity of research findings was achieved through computerized selection (Microsoft Excel).

2.3 Research Instrument

This study adapted questionnaires from the BFP's OLP Guidebook and MC2019-40 of the Department of the Interior and Local Government for both levels of understanding of roles and the extent of implementation of the OLP program. The researchers modified the contents of the adapted questionnaires to meet the study's specific needs. The researchers subjected the questionnaires to a validity test using the Lawshe Content Validity Ratio. Ten experts validated the survey questionnaire created by the researcher to ensure its validity and reliability. The researchers employed a five-point Likert scale to assess the items listed in Parts II and III of the survey. The Lawshe validation instrument helped evaluate the questionnaire by identifying each question and determining whether it was "essential," "useful but not essential," or "not necessary." The CVR per item had to be 0.99 to be included in the final questionnaire. Based on the content validity ratio, 57 of the 58 questions were deemed suitable for inclusion. The researchers recruited 30 participants from a barangay of a highly urbanized city to answer the questionnaire for the pilot test. The data from these participants were not included in the actual study sample. To assess the reliability of the questionnaire, the researchers used Cronbach's Alpha, where a result closer to 1.0 indicates higher internal consistency. The questionnaire yielded a reliability result of 0.918 and was interpreted as valid.

2.4 Data Gathering Procedure

This study followed specific procedures to gather data successfully and ethically. First, to ensure ethical compliance and secure permission to conduct the research, a formal letter was sent to the Office of the City Mayor, as well as to the Barangay Captains, who granted permission for the survey to be conducted. Upon receiving approval, the researchers then approached potential participants and presented them with an Informed Consent Form. This form clearly outlined the purpose of the study, the voluntary nature of participation, the confidentiality measures in place, and the potential risks and benefits associated with their involvement. Participants were given ample time to review the form and ask any questions before deciding whether to participate. Distributing and collecting the survey questionnaires involved personally handing out the questionnaires to the participants at their workplace, providing clear instructions for completion, and arranging a specific time for collecting the completed forms. After retrieving the completed questionnaires, the researchers carefully compiled the raw data and prepared it for analysis. The data was then processed using appropriate statistical tools via computer software to ensure accuracy and efficiency in deriving meaningful insights.

2.5 Data Analysis

The researchers analyzed the level of understanding of roles and the extent of implementation using mean and standard deviation to gain a comprehensive understanding of their levels within the component city. Frequency and percentage were used to determine the ranks of the categorized challenges encountered during the program's

implementation. To explore significant differences in the level of understanding of roles based on demographic factors such as position, length of service, and length of involvement, the researcher employed the Mann-Whitney U test. In terms of educational attainment, the Kruskal-Wallis test was used. To determine the significant difference in the extent of implementation among the Handang-Pamayanan Program, Bayanihan Program, Kaagapay Program, and Lingap Program when considered as a whole and when grouped by length of service and length of involvement, the Mann-Whitney U test was employed. To determine the significant relationship between the level of understanding of the roles and the extent of Oplan Ligtas na Pamayanan implementation, Spearman's Rho was used. All analyses were conducted using SPSS v.28, adhering to standard protocols for non-parametric data (Field, 2018).

2.6 Ethical Considerations

This study, framed as social science research, examined the level of understanding of the roles and extent of implementation of OLP within a component city. It did not involve sensitive personal data or vulnerable populations, aligning with methodologies that pose minimal risk to participants. No formal approval from the ethics review has been made. Ethical principles of voluntary participation, anonymity, and confidentiality were rigorously upheld, ensuring no identifiable information about the participants or the organization was disclosed. Ethical safeguards were maintained through informed consent and adherence to institutional policies for workplace data collection.

To ensure ethical compliance, the researchers obtain permission to conduct the research through a formal letter addressed to the Office of the City Mayor, as well as to each Barangay Captain, for permission to conduct the survey. Upon receiving approval, the researchers then approached potential participants and presented them with an Informed Consent Form. This form clearly outlined the purpose of the study, methodologies, the voluntary nature of participation, the confidentiality measures in place, the potential risks and benefits associated with their involvement, and the importance of honest responses. Each participant had the opportunity to review and understand these elements, reinforcing their comprehension of the study's purpose and their role in shaping outcomes. To formalize their involvement, participants signed an Informed Consent form. Strict confidentiality was emphasized to safeguard against privacy breaches.

Participants were also informed of their right to withdraw from the study at any time without consequence, empowering them to make choices that align with their comfort. The survey process was executed with respect for participants' time and privacy, adhering to established ethical guidelines. Every aspect of the research reinforced a commitment to integrity and respect for participants. To maintain confidentiality, no personally identifiable information was collected or recorded during the study. Data were anonymized at the point of collection, and responses were coded to prevent linkage to individual participants or the organization. Any physical documents, such as signed consent forms, were kept in locked cabinets within secure facilities. These measures ensured that participant identities and organizational details remained confidential throughout the study and after its completion.

3.0 Results and Discussion

3.1 Level of Understanding the Role in OLP

Table 1 presents barangay officials' understanding of Oplan Ligtas na Pamayanan (OLP), revealing a generally high level of comprehension across key domains. Specifically, officials demonstrated strong General Awareness (*M = 3.55, SD = 0.95)* and proficiency in the Application of OLP Principles *(M = 3.63, SD = 1.31*). However, their Knowledge of OLP Components was comparatively moderate (*M = 3.46, SD = 0.84*). The composite score for overall understanding of OLP was also high (*M = 3.55, SD = 0.87*), underscoring officials' grasp of the program's overarching objectives and practical applications.

Table 1. *Level of Understanding of the Role in OLP*

Indicators	Mean	Interpretation	Standard Deviation
Overall	**3.55**	**High**	**0.87**
General Awareness	3.55	High	0.95
Knowledge of OLP Components	3.46	Moderate	0.84
Application of OLP Principles	3.63	High	1.31

Note: 4.50-5.00 (Very High); 3.50-4.49 (High); 2.50-3.49 (Moderate); 1.50-2.49 (Low); 0.50-1.49 (Very Low)

The consistently high scores in general awareness and application suggest that barangay officials are well-versed in the broad aims and operational aspects of OLP. This is encouraging, as it indicates readiness to implement disaster preparedness initiatives at the community level. However, the moderate score in Knowledge of OLP Components points to a gap in detailed procedural understanding. This gap is significant: as Paton (2003) notes, effective disaster preparedness requires not only awareness but also mastery of specific protocols and roles. Without this depth of knowledge, the risk of inconsistent or incomplete implementation increases. Moreover, the relatively high standard deviation in the Application of OLP Principles (SD = 1.31) suggests substantial variability in how officials apply their knowledge in practice. This variability may stem from uneven access to training or resources, as highlighted by UNISDR (2015), and could lead to disparities in disaster response effectiveness across barangays. Such findings reinforce the need for targeted, standardized training interventions—such as structured workshops and comprehensive manuals—to clarify technical aspects and ensure uniformity in program execution.

These results align with community-based disaster resilience frameworks (Aldrich, 2012), which emphasize iterative, localized capacity-building to bridge knowledge gaps and standardize best practices. The observed trends in this study—particularly the moderate procedural knowledge and high variability in application—mirror challenges identified in previous research, where the absence of detailed, context-specific training undermines the overall effectiveness of disaster risk reduction programs. In practical terms, addressing the identified knowledge gaps is crucial for enhancing disaster preparedness and response. Prioritizing capacity-building initiatives that focus on the technical components of OLP will not only improve individual competencies but also promote more consistent and effective program implementation. This, in turn, can strengthen community resilience and ensure that disaster response efforts are both timely and coordinated.

3.2 Extent of Implementation of OLP

Table 2 summarizes the extent of implementation for the four core components of Oplan Ligtas na Pamayanan (OLP) across participating barangays. The Handang-Pamayanan (*M = 3.65, SD = 0.83)* and Kaagapay *(M = 3.62, SD = 0.81*) programs emerged as the most robustly implemented, both falling under the "Largely Implemented" (LI) category. The Bayanihan Program (*M*=3.49, *SD*=0.87) also achieved an LI rating, while the Lingap Program (*M*=3.39, *SD*=0.97) was rated as "Partially Implemented" (PI). Notably, the Lingap Program exhibited the highest variability in implementation, as indicated by its standard deviation.

Table 2. *Extent of Implementation of OLP*

Indicators	Mean	Interpretation	Standard Deviation
Overall	3.54	Largely Implemented	0.79
Handang-Pamayanan Program	3.65	Largely Implemented	0.83
Bayanihan Program	3.49	Largely Implemented	0.87
Kaagapay Program	3.62	Largely Implemented	0.81
Lingap Program	3.39	Partially Implemented	0.97

Note: 4.50-5.00 (Fully Implemented); 3.50-4.49 (Largely Implemented); 2.50-3.49 (Partially Implemented); 1.50-2.49 (Minimally Implemented); 0.50-1.49 (Not Implemented)

The consistently high implementation ratings for Handang-Pamayanan and Kaagapay suggest that preparedness and partnership initiatives are well-integrated into barangay disaster management practices. This aligns with Wisner's (2004) model, which emphasizes the effectiveness of community engagement and proactive planning. The success of these programs can be attributed to more straightforward operational guidelines and stronger institutional support, which makes them easier to adopt and sustain.

In contrast, the lower and more variable implementation of the Lingap Program signals persistent challenges in delivering community welfare and assistance services. These difficulties may stem from resource limitations, logistical complexities, or varying local capacities—factors highlighted by Aldrich (2012) as common barriers to sustaining welfare-focused disaster interventions. The relatively high standard deviation for Lingap further suggests that some barangays are more successful than others, possibly due to differences in local leadership, funding, or community engagement.

The moderate variability across all program components (*SD* range: 0.81–0.97) underscores the "patchwork effect" described by Comfort (2007), where disparities in local implementation can undermine overall program effectiveness. This finding points to the need for more standardized protocols and targeted capacity-building efforts to ensure consistent delivery across barangays.

These results reinforce the value of community-based disaster management, as advocated by UNISDR (2015), while also highlighting the necessity for continuous monitoring and adaptation. The strong performance of preparedness and partnership programs validates the community-driven approach; however, the challenges faced by the Lingap Program highlight the importance of context-specific adaptations and sustained support. Paton (2003) similarly emphasizes that successful disaster management requires ongoing capacity-building and evaluation to address emerging gaps and ensure program sustainability.

From a practical standpoint, these findings suggest two key priorities: (1) Strengthen Support for the Lingap Program: Targeted interventions—such as additional funding, technical assistance, and peer-learning opportunities—should be prioritized for barangays struggling with Lingap implementation, and (2) Standardize and Share Best Practices: Identifying and replicating effective strategies from high-performing barangays can help reduce variability and elevate overall program performance. Developing clear, adaptable guidelines for all program components will also promote more uniform implementation across the entire program.

3.3 Challenges Encountered in the Implementation of OLP

Table 3 presents the critical challenges encountered by barangay officials in implementing Oplan Ligtas na Pamayanan (OLP). The most frequently reported barriers were limited access to necessary equipment and materials, cited by 57.0% of respondents, followed by the reluctance of community members to participate in drills and training sessions (44.3%). Insufficient funding and lack of trained personnel were also prominent challenges (both at 42.7%). Coordination issues, such as inadequate support from higher government levels (39.7%) and ineffective communication channels (31.3%), alongside policy-related difficulties—impractical guidelines (37.7%) and unclear accountability mechanisms (35.0%)—further complicated implementation efforts.

Table 3. *Challenges Encountered in the Implementation of OLP*

Category	Specific Challenge	Frequency	Percentage	Rank
Resource Constraints:	Our barangay has limited access to necessary equipment and materials for fire prevention and preparedness.	171	57.0%	1
	Our barangay lacks sufficient funding to support OLP activities.	128	42.7%	3
	Our barangay lacks trained personnel to implement OLP programs effectively	128	42.7%	3
	Our barangay has insufficient access to information and training resources related to OLP.	107	35.7%	6
Community Engagement and Participation	Community members are reluctant to participate in fire drills and training sessions.	133	44.3%	2
	There is a low level of community awareness regarding fire safety and preparedness.	101	33.7%	8
	It is not easy to engage community members in OLP activities.	93	31.0%	10
	Securing community volunteers for fire prevention and response is a challenging task.	91	30.3%	11
	There is resistance from some community members to OLP initiatives.	72	24.0%	16
Coordination and Collaboration:	There is a lack of support from higher levels of government in OLP implementation.	119	39.7%	4
	Communication channels for OLP implementation are ineffective.	94	31.3%	9
	Collaboration with community organizations and stakeholders can be challenging.	99	30.0%	12
	Coordination with other government agencies is a challenging task.	81	27.0%	14
	There is insufficient coordination among barangay officials in implementing OLP.	79	26.3%	15
Policy and Procedural Challenges:	The existing OLP guidelines are not practical or relevant to our barangay's specific context.	113	37.7%	5
	There is a lack of precise accountability mechanisms for implementing the OLP.	105	35.0%	7
	There is insufficient monitoring and evaluation of OLP activities.	87	29.0%	13
	Bureaucratic processes and red tape hamper the implementation of OLP.	71	23.7%	17
	The existing policies and procedures for OLP implementation are unclear or confusing.	70	23.3%	18

These findings reveal a multifaceted implementation crisis where resource constraints, community engagement gaps, coordination failures, and policy inadequacies collectively undermine the effectiveness of OLP. The prominence of equipment shortages underscores the foundational role of material resources in disaster

preparedness, as without adequate tools, barangays face inherent limitations in operationalizing program activities. This aligns with Birkmann's (2011) vulnerability framework, which identifies material resource deficits as critical impediments to resilience-building.

Community engagement challenges, particularly the reluctance to participate in drills, highlight issues of risk perception and motivation within the population. Paton's (2013) protection motivation theory helps explain this phenomenon, suggesting that low perceived risk or self-efficacy may reduce willingness to engage in preparedness activities. Addressing these psychological and social barriers through targeted education and awareness campaigns is essential to foster active community participation.

Coordination and collaboration difficulties reflect systemic governance challenges. The reported lack of higher government support and ineffective communication channels resonate with Kapucu et al.'s (2022) networked governance model, which emphasizes the complexity of interorganizational collaboration in disaster risk reduction and management (DRRM). These findings suggest that strengthening vertical and horizontal linkages through more precise support mechanisms and streamlined communication protocols is vital to enhance program coherence and resource sharing.

Policy and procedural challenges, including impractical guidelines and unclear accountability, correspond with Matland's (1995) ambiguity-conflict model, which posits that unclear or conflicting directives can hinder effective policy implementation. Revising OLP guidelines to be more context-specific and simplifying accountability frameworks will likely improve clarity and compliance at the barangay level.

From a practical standpoint, these results argue for a tiered, integrated response strategy. Immediate priorities should focus on alleviating resource shortages—particularly equipment and funding—while simultaneously implementing community engagement initiatives to improve participation rates. Addressing coordination issues requires establishing formal intergovernmental support structures and enhancing communication channels to facilitate effective collaboration and coordination. Finally, policy reforms should aim to contextualize guidelines and clarify accountability to reduce procedural confusion.

Given the multi-sectoral nature of these challenges, isolated barangay-level solutions are insufficient. Instead, cross-departmental task forces and collaborative governance structures are recommended to facilitate coordinated action, resource pooling, and knowledge exchange. This approach aligns with the UNDRR (2019) emphasis on integrated, multi-stakeholder frameworks as essential for overcoming complex implementation barriers and strengthening community resilience.

3.4 Difference in the Level of Understanding of the Roles in OLP when Grouped according to Position, Length of Service, and Length of Involvement

Results from Table 4 indicate significant differences in the understanding of roles within Oplan Ligtas na Pamayanan (OLP) based on position, length of service, and length of involvement. The Mann-Whitney U tests revealed statistically significant disparities for position ($U = 5497.50$, $z = -2.66$, $p = .008$) and for both length of service and involvement ($U = 8118.00$, $z = -1.96$, $p = .050$), confirming that these factors influence role comprehension among barangay officials.

Table 4. *Difference in the Level of Understanding of the Roles in OLP when Grouped according to Position, Length of Service, and Length of Involvement*

Variables	U	z	p
Position	5497.50	-2.66	.008
Length of Service	8118.00	-1.96	.050
Length of Involvement	8118.00	-1.96	.050

Note: *difference is significant when p<.05

These findings suggest that individuals occupying different roles or with varying tenure levels possess distinct levels of clarity regarding their responsibilities in OLP. Specifically, newer or frontline personnel may have less familiarity with their duties compared to more experienced counterparts, potentially due to limited exposure or training. This underscores the importance of tailored capacity-building strategies, such as targeted orientation sessions for recruits and periodic refresher courses for long-serving members, to maintain consistent role clarity and program alignment.

The observed variations align with prior research emphasizing the influence of position and experience on disaster preparedness competencies. For instance, Cvetković and Šišović (2024) identified employment status and educational background as key determinants of role perception and execution in community safety initiatives. Similarly, ul-Hassan et al. (2021) demonstrated that prolonged involvement enhances role clarity and operational effectiveness. These studies support the current results, reinforcing the need for structured role delineation and continuous education to optimize program implementation and coordination. Practically, addressing these disparities can improve overall OLP effectiveness by ensuring all personnel, regardless of position or tenure, understand and fulfill their roles competently. This, in turn, strengthens community resilience by promoting cohesive and coordinated disaster risk reduction efforts.

3.5 Difference in the Level of Understanding the Roles in OLP when Grouped according to Educational Attainment

Results from Table 5 demonstrate a significant difference in the understanding of roles within Oplan Ligtas na Pamayanan (OLP) across educational attainment groups. The Kruskal-Wallis test confirmed this association (χ^2 = 8.22, df = 2, p = .016), indicating that participants' educational backgrounds meaningfully influence their comprehension of program responsibilities.

Table 5. *Difference in the Level of Understanding the Roles in OLP when Grouped according to Educational Attainment*

Educational Attainment	Value	df	Asymptotic Significance (2-sided)
Kruskal Wallis Test	8.22	2	.016

Note: *difference is significant when p<.05

This finding suggests that educational level influences how effectively individuals grasp their roles in OLP, with those possessing higher levels of education likely exhibiting greater role clarity. Such disparities underscore the need for differentiated training strategies tailored to participants' educational profiles. For example, individuals with lower educational attainment may benefit from foundational, simplified learning materials, while those with advanced education could engage with more specialized and in-depth modules. Incorporating tiered instructional designs and formative assessments can promote equitable understanding and participation, thereby enhancing program cohesion and operational effectiveness.

The observed trend aligns with existing research that links education to competency in community safety initiatives. Lapada (2022) identified educational background as a significant predictor of participants' ability to internalize disaster risk reduction concepts. Similarly, Aliesa et al. (2024) emphasized the effectiveness of customized educational interventions in bridging knowledge gaps within diverse community fire safety programs. These studies corroborate the current results, underscoring the critical role of education-sensitive training frameworks in optimizing the implementation of OLP. Practically, addressing educational disparities through adaptive training not only fosters inclusive capacity building but also enhances overall program resilience by ensuring that all participants can competently fulfill their roles, regardless of their educational background.

Comparison between Educational Level and Level of Understanding the Roles in OLP

Table 6 compares participants' understanding of Oplan Ligtas na Pamayanan (OLP) roles across educational levels, revealing significant differences primarily between high school graduates and those with some college education. The Mann-Whitney U test indicated a statistically significant difference between these groups (U = 4863.00, z = -2.87, p = .004), with college-level participants demonstrating greater role comprehension. In contrast, no significant differences were found between college-level and college graduates (p = 0.474) or between high school graduates and college graduates (p = 0.110), suggesting a threshold effect whereby attaining a college-level education markedly improves understanding, but further educational advancement yields minimal additional gains.

Table 6. *Difference in the Level of Understanding the Roles in OLP when Grouped according to Educational Attainment*

Variables	U	z	p
High School Graduate vs College Level	4863.00	-2.87	.004
College Level vs College Graduate and others	3313.00	-0.72	.474
High School Graduate vs College Graduate and others	4072.00	-1.60	.110

Note: *difference is significant when p<0.05

This threshold pattern underscores education as a pivotal factor in OLP role comprehension, particularly highlighting the substantial cognitive leap from high school to college-level education. Practically, this implies that OLP training programs should consider differentiated instructional approaches, providing additional foundational support for participants with only a high school education to bridge this gap. Meanwhile, training resources might be optimized by focusing on achieving a baseline college-level understanding for the majority, rather than tailoring extensively for higher educational tiers.

The findings resonate with Meyer and Land's (2003) theory of threshold concepts, which posits that certain educational milestones unlock transformative understanding. They also align with disaster preparedness literature, which emphasizes education as a key determinant of risk perception and role clarity (Wachinger et al., 2010). The observed plateau beyond college-level education echoes patterns in adult learning research, where incremental knowledge gains diminish after foundational competencies are established (Merriam & Bierema, 2014). Moreover, these results contribute to the ongoing discourse on disaster education optimization (Petal et al., 2023) by suggesting that foundational college-level education provides a critical cognitive framework necessary for effective engagement with OLP responsibilities, consistent with broader findings on the role of education in enhancing disaster resilience (UNISDR, 2015).

3.6 Difference in the Extent of Implementation of OLP when grouped according to Length of Service and Length of Involvement

Table 7 explores differences in the extent of Oplan Ligtas na Pamayanan (OLP) implementation based on participants' length of service and involvement. The Mann-Whitney U tests revealed near-significant trends for both variables (length of service: U=8167.50, z=-1.89, p=.059; length of involvement: U=8167.50, z=-1.89, p=.059), indicating that variations in experience may influence how OLP protocols are executed, though these differences do not meet the conventional threshold for statistical significance (p<.05).

Table 7. *Difference in the Extent of Implementation of OLP when Grouped according to Length of Service and Length of Involvement*

Variables	U	z	p
Length of Service	8167.50	-1.89	.059
Length of Involvement	8167.50	-1.89	.059

Note: *difference is significant when p<.05

While these borderline results do not definitively confirm experience as a determinant of implementation, they suggest a meaningful pattern worth attention in program planning. It is plausible that more experienced personnel apply OLP procedures differently or more effectively than their less-experienced counterparts, reflecting a maturation of practical skills over time. This interpretation aligns with the observed strong correlation between understanding of roles and implementation quality, underscoring the premise that enhanced role comprehension facilitates better execution.

From a practical standpoint, these findings advocate for continuous monitoring of implementation practices across staff tenure and support the development of mentorship or peer-learning programs that pair seasoned members with newcomers. Such initiatives could accelerate skill transfer and promote consistent application of OLP protocols. The results resonate with Bandura's (1986) Social Cognitive Theory, which posits that knowledge and self-efficacy are foundational to behavioral enactment. Additionally, recent research by Zada et al. (2023) highlights the mediating role of role clarity in the relationship between experience and program implementation within community safety contexts. Thus, our findings not only align with established theoretical frameworks but also contribute valuable insights into the local dynamics of disaster preparedness implementation.

3.7 Relationship between the Level of Understanding of the Roles and the Extent of Implementation

Table 8 demonstrates a strong, statistically significant positive correlation between barangay officials' level of understanding and the extent of Oplan Ligtas na Pamayanan (OLP) implementation (Spearman's rho=.826, p<.001). This robust association suggests that a greater understanding of roles and responsibilities is strongly predictive of more effective program execution. The equal rho values for both variables suggest a reciprocal dynamic, where enhanced understanding facilitates implementation quality, and practical experience in turn reinforces conceptual knowledge.

Table 8. *Difference in the Extent of Implementation of OLP when Grouped according to Length of Service and Length of Involvement*

Relationship Tested	Result	Significance
Understanding vs. Implementation	Spearman's ρ = .826	p < .01

Note:*correlation is significant when p<.05

This strong link underscores three strategic priorities for optimizing OLP outcomes: (1) strengthening foundational training to raise baseline knowledge across all official categories, (2) providing just-in-time learning supports that address knowledge gaps during implementation, and (3) establishing feedback loops where implementation experiences inform ongoing training content. Recognizing the reciprocal nature of this relationship advocates for integrated training and implementation cycles rather than treating knowledge acquisition and practical application as discrete stages. Furthermore, addressing previously identified knowledge disparities—such as those related to education and position—is critical to improving overall program effectiveness. Monitoring both understanding and implementation metrics concurrently can provide a more comprehensive evaluation of program performance.

The findings align closely with Bandura's (1986) Social Cognitive Theory, which emphasizes cognitive factors as foundational to behavioral competence. They also empirically support Paton's (2018) disaster preparedness model, which positions knowledge as a key mediator between training and effective action. The reciprocal relationship resonates with Kolb's (1984) experiential learning cycle, highlighting the continuous interplay between concrete experience and abstract conceptualization. Additionally, these results reinforce the UNDRR's (2019) "knowledge-to-action" framework, emphasizing the critical role of translating knowledge into practice within local disaster governance. Notably, the strength of this correlation (*rho*>.8) exceeds typical values reported in community program studies, suggesting that OLP's technical complexity places a particularly high premium on cognitive foundations. This finding underscores the need for substantial and ongoing capacity building to sustain effective disaster risk reduction at the community level.

4.0 Conclusion

This study provides robust evidence that barangay officials in the surveyed component city possess a high level of general awareness and practical application of Oplan Ligtas na Pamayanan (OLP) principles, but only moderate knowledge of its specific components. The research establishes a strong positive correlation between understanding of roles and the effectiveness of OLP implementation, highlighting the critical importance of targeted capacity-building and resource allocation to enhance community fire safety. This study collectively highlights the need for a multi-pronged approach that combines regular competency development, improved resource allocation, enhanced inter-agency coordination, and community engagement strategies to optimize the impact of OLP on community resilience. Addressing these issues systematically could significantly strengthen barangay-level disaster risk reduction and management capabilities in the long term.

5.0 Contributions of Authors

The first author conceptualized the research topic and collaborated on the design and analysis of the data. The second author reviewed the manuscript.

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7.0 Conflict of Interests

The authors declare that they have no conflict of interest.

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