The effect of WhatsApp-based leadership communication on neighborhood security

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Abstract

This study examines the relationship between WhatsApp-based leadership communication and perceptions of neighborhood safety. This study used a cross-sectoral exploratory quantitative survey of 92 residents of Bojong Lio Village, Cilodong District, Depok City, Indonesia, who are members of a neighborhood WhatsApp group. Respondents were selected using purposive sampling based on their participation in neighborhood-level WhatsApp communication. Data were collected through a structured questionnaire using a five-point Likert scale and analyzed using descriptive statistics and simple linear regression. The results showed a positive and statistically significant relationship between leadership communication and perceptions of neighborhood safety. A correlation coefficient of 0.750 indicates a strong relationship, while a coefficient of determination of 0.562 indicates that 56.2% of the variation in neighborhood safety perceptions can be statistically explained by leadership communication. The regression equation is Y = 11.192 + 0.354X, indicating that higher-quality leadership communication is associated with higher perceptions of neighborhood safety. Descriptive findings also revealed that clarity of information, leader activeness, understandable language, coordination skills, and clear directions were the most prominent aspects of communication. In terms of security, the highest-ranking indicators included residents' response to disturbances, sense of security, rapid dissemination of security information, and cooperation among residents. These findings suggest that WhatsApp-based leadership communication can support neighborhood coordination and perceived preparedness, although the cross-sectional study design limits causal conclusions.

Keywords: leadership communication, perceived neighborhood security, WhatsApp, digital communication, local leadership.

O impacto da comunicação de liderança via WhatsApp na segurança da vizinhança

Resumo

Este estudo examina a associação entre a comunicação de liderança por WhatsApp e a segurança percebida da vizinhança. A pesquisa utilizou um survey quantitativo explicativo transversal com 92 moradores da Vila Bojong Lio, no Distrito de Cilodong, na Cidade de Depok, Indonésia, que participavam de grupos de WhatsApp da vizinhança. Os respondentes foram selecionados por amostragem intencional com base em sua participação na comunicação comunitária no WhatsApp. Os dados foram coletados por meio de questionário estruturado e autoaplicado, com escala Likert de cinco pontos, e analisados por meio de estatística descritiva e de regressão linear simples. Os resultados mostram uma associação positiva e estatisticamente significativa entre a comunicação da liderança e a segurança percebida da vizinhança. O coeficiente de correlação de 0,750 indica uma relação forte, enquanto o coeficiente de determinação de 0,562 indica que 56,2% da variação na segurança percebida da vizinhança pode ser explicada estatisticamente pela comunicação da liderança. A equação de regressão é Y = 11,192 + 0,354X, indicando que uma maior qualidade da comunicação de liderança está associada a uma maior segurança percebida. Os resultados descritivos revelam que a clareza das informações, a atuação ativa do líder, a linguagem compreensível, a capacidade de coordenação e as orientações claras são os

aspectos comunicacionais mais destacados. Em relação à segurança, os indicadores mais bem avaliados incluem a capacidade de resposta dos moradores, a sensação de segurança, a rápida disseminação de informações de segurança e a cooperação entre os moradores. Os achados sugerem que a comunicação de liderança via WhatsApp pode apoiar a coordenação comunitária e a percepção de preparo, embora o desenho transversal exija cautela na interpretação causal.

Palavras-chave: comunicação de liderança, segurança percebida da vizinhança, WhatsApp, comunicação digital, liderança local.

1. Introduction

Digital transformation has reshaped the way local communities communicate, coordinate, and build collective responses to everyday challenges. In this context, WhatsApp occupies a crucial position because it combines speed, accessibility, interactivity, and social immediacy within a single platform. Several studies have shown that instant messaging is no longer merely a tool for exchanging information, but has also become a communication infrastructure that supports leadership relations, group management, and the production of shared meaning in digital social spaces. WhatsApp can strengthen organizational communication competencies when leaders use it effectively (Neiroukh et al., 2024).

Furthermore, WhatsApp groups offer opportunities for faster and more efficient coordination (Jailobaev et al., 2021). More broadly, digital leadership requires integrating technology, communication, and social relationship management skills (López-Figueroa et al., 2025). In this way, leaders' communication in virtual spaces can help build trust (Badrinarayanan, 2024). For neighborhood-level communities, the relevance of WhatsApp is even greater because local coordination requires a flow of information that is fast, concise, and easily accessible to residents.

Platform-based digital communication networks can strengthen civic dynamics, increase social closeness, and build coordinative capacity at the neighborhood level. Online neighborhood networks are closely linked to neighborhood social dynamics and local communication practices (Robaeyst et al., 2022). The digitalization process at the neighborhood scale has become an important factor shaping governance, everyday practices, and social resilience (Hatuka; Elhanan, 2026). Within the framework of participation, participatory digital tools expand opportunities for citizen engagement (Shin et al., 2024). Digital platforms can also function as civic platforms that enable citizens to participate in managing urban life and support more risk-sensitive development when access, design, and policy processes align with community needs (Cardullo; Kitchin, 2025; McDermott et al., 2025).

In this study, leadership communication serves as the main point of departure because the quality of digital leadership determines whether message flows within citizen groups remain merely informational or develop into effective coordination. Digital leadership contributes positively to community resilience, particularly when supported by knowledge sharing and trust, while digital transparency can increase citizen participation in online government activities (Zhao et al., 2025; Zhao et al., 2023). This argument is particularly important in the context of neighborhood heads (RT), because local leaders not only disseminate messages but also build legitimacy, clarity, and responsiveness. When information is delivered clearly, timely, and relevantly, communication can more effectively support collective coordination and strengthen residents' engagement in neighborhood life.

The urgency of this issue becomes more apparent when it is linked to neighborhood security. Digital media can build awareness, disseminate warnings, promote rapid response, and support community-based coordination, and it can strengthen disaster resilience when used strategically (Lam et al., 2023). Social media can also become a crucial resource for vulnerable groups in post-disaster situations (Bonati et al., 2023). Participatory, culturally adaptive, and locally knowledge-based digital communication further strengthens community preparedness (Rizal et al., 2025). At the neighborhood level, digital community group moderators also play an important role in managing online safety and local security governance (Samiee et al., 2025).

However, the use of WhatsApp within a community does not automatically lead to a high level of security or participation. The platform also has limitations, including misinformation, message ambiguity, information overload, unequal participation, and digital exclusion. The WhatsApp ecosystem remains vulnerable to the circulation of mis/disinformation, thereby requiring verification mechanisms (Frischlich et al., 2024). Although WhatsApp is effective in reaching hard-to-reach communities, its effectiveness still depends on methodological and social sensitivity in managing interactions (Heywood et al., 2024). Communication through WhatsApp

groups can expand engagement, but it can also lead to negotiations over roles, expectations, and participation boundaries (Traeger-Soudry et al., 2025).

Against this background, this study aims to examine the association between WhatsApp-based leadership communication and perceived neighborhood security. More specifically, it examines how leadership communication via neighborhood WhatsApp groups relates to social coordination, community responsiveness, and residents' sense of safety at the local level. Because this research uses a cross-sectional survey design, the statistical relationship found in this study should be interpreted as an association rather than definitive evidence of causality.

2. Literature Review

The increasing integration of digital media into everyday social life has transformed the way leadership is exercised at the community level. Leadership is no longer limited to face-to-face interactions or formal institutional settings; rather, it increasingly operates through digitally mediated platforms that enable continuous contact, rapid coordination, and distributed participation. Recent studies describe digital leadership as an emerging construct that combines strategic communication, technological competence, relational management, and adaptability in hybrid interaction environments. From this perspective, leaders are expected not only to convey information but also to shape collective understanding, sustain interactions, and mobilize coordinated responses through digital channels (Tigre et al., 2025; Bellis et al., 2024; Berg; Hofmann, 2021).

This shift is closely related to the emergence of e-leadership, which emphasizes leaders' ability to influence others through information and communication technologies. E-leadership becomes effective when leaders maintain clarity, responsiveness, and trust while operating in a mediated environment. In this regard, e-leadership competencies are associated with workplace well-being and performance through self-efficacy, and they also strengthen organizational citizenship behavior when communication technology is meaningfully embedded in interactions (Alkhayyal; Bajaba, 2023; Abuowda et al., 2024). Leaders in digital collaborative teams also play a crucial role in facilitating productive knowledge sharing across heterogeneous member environments (Huang; Wang, 2024). These findings are relevant for neighborhood-level governance because they suggest that local leaders using digital platforms must function not merely as transmitters of information, but also as facilitators of participation and collective action.

Among digital communication platforms, WhatsApp has gained particular importance because of its accessibility, low cost, speed, and conversational structure. Participation in instant messaging chat groups is positively associated with better functioning and well-being, with communication quality acting as a mediator (Zhao et al., 2021). WhatsApp-supported interactions can also enhance knowledge exchange, resilience, and social connectedness (Pimmer et al., 2021). These characteristics make WhatsApp especially relevant in neighborhood settings, where communication often needs to be immediate, practical, and socially embedded in everyday interactions.

Digital participation offers important opportunities for engagement, but only when it is designed or regulated to foster inclusiveness. Digital tools can broaden regulatory engagement, yet they also face limitations when participation remains shallow or uneven (Townley; Koop, 2024). In urban and community planning, ICT can support social participation in the planning, design, and maintenance of public spaces, especially when digital tools help communities exchange information and coordinate on local issues (Alvarado Vazquez et al., 2023). Thus, participation should not be understood as an automatic consequence of digital media use, but rather as a process shaped by communication design, platform capabilities, and the credibility of those managing communication.

This point is reinforced by studies showing that transparency and the use of ICT can increase citizen trust in local government (Kim et al., 2022). At the same time, the positive relationship between e-government effectiveness and trust becomes stronger when citizens possess higher digital literacy (Lee-Geiller, 2024). Digital governance capacity also depends on the interaction between resource inputs, process transformations, and service outcomes (Xu; Dai, 2024). For neighborhood-level leadership, these studies imply that digital communication is not merely a technical infrastructure, but also a governance resource that can support legitimacy, responsiveness, and coordinated citizen engagement.

However, citizen participation is also shaped by the means and settings of engagement. Smart city governance should be assessed not only in terms of technological sophistication, but also in terms of the forms of active citizen engagement it enables (Kummitha, 2025). Similarly, Lu et al. (2025) found that citizens' preferences for

online or in-person participation vary by convenience, desired impact, and expected outcomes, leading them to recommend a hybrid participation system. This insight is important for neighborhood WhatsApp groups, which should not be treated as substitutes for other forms of citizen engagement. Instead, they should be understood as complementary arenas where participation can be initiated, sustained, and coordinated, particularly for everyday issues that require rapid responses and low-threshold engagement.

Online community governance further influences whether communication becomes meaningful participation or merely the circulation of messages. Participatory governance and norms enforced by fellow members are more effective than formal control alone in building a sense of virtual community (Bulat, 2025). This is particularly relevant to neighborhood WhatsApp groups, where interactions rely on shared expectations, reciprocal responses, and locally understood communication norms. A community leader who can maintain orderly yet open communication may be more successful at generating trust, engagement, and collective responsibility than one who relies solely on top-down instructions. In this regard, communication effectiveness should not be understood only as message clarity, but also as the capacity to sustain a participatory communication climate within the group.

For conceptual clarity, this study distinguishes perceived neighborhood security, objective neighborhood security, and social cohesion. Perceived neighborhood security refers to residents' subjective assessments of safety, preparedness, rapid access to information, and collective responsiveness. Objective neighborhood security refers to observable indicators such as recorded crime incidents, patrol records, or official security statistics; these were not measured in the present study. Social cohesion refers to the quality of interpersonal trust, cooperation, and collective responsibility among residents. Although social cohesion may contribute to perceived security, it is analytically distinct from security itself. In the context of this research, neighborhood security is therefore understood primarily as perceived security, supported by communication and coordination, rather than as a direct measure of crime reduction.

Finally, neighborhood life and security are shaped in part by communication, trust, and the social organization of residential spaces, while digital communication technologies increasingly reshape the residential experience and performance of neighborhoods (Gershon-Coneal et al., 2024). Neighborhood security, particularly when viewed in relation to public trust, suggests that perceptions of safety are both relational and institutional (Dzordzormenyoh, 2025). These findings support the argument that perceived neighborhood security should not be understood simply as the absence of crime, but also as a socially produced condition reinforced by information flows, shared awareness, coordination, and collective responses.

3. Research Methods

3.1 Research design and setting

This study adopted a cross-sectional explanatory quantitative survey design to examine the association between WhatsApp-based leadership communication and perceived neighborhood security. This design is appropriate because the study aims not only to describe residents' perceptions but also to test the statistical relationship between the proposed variables in a structured and measurable manner. The cross-sectional design allows the study to identify associations between variables at a single point in time, but it does not permit strong causal inference. The research was conducted in Bojong Lio Village, Cilodong District, Depok City, Indonesia. This location was chosen because neighborhood-level communication increasingly relies on WhatsApp groups to disseminate information, coordinate collective activities, and address local security concerns.

3.2 Population, sampling technique, and respondent recruitment

The study population consisted of residents who were members of neighborhood WhatsApp groups in the selected research area. The study used purposive sampling because the research required respondents who had direct experience with WhatsApp-based communication managed or facilitated by the neighborhood head (RT). This technique was considered suitable for a perception-based survey because not all residents use or actively participate in neighborhood WhatsApp groups. The inclusion criteria were: (1) being a resident of the selected neighborhood area; (2) being at least 17 years old or otherwise considered able to provide informed consent; (3) being a member of a neighborhood WhatsApp group; (4) having received or observed security-related or coordination-related messages in the group; and (5) agreeing voluntarily to participate in the survey. The exclusion criteria were: (1) residents who were not members of a neighborhood WhatsApp group; (2) respondents who did not provide informed consent; (3) duplicate submissions; and (4) questionnaires with

substantial missing responses.

Respondents were recruited through neighborhood communication channels. The survey link or questionnaire information was distributed through the neighborhood WhatsApp group and/or through the assistance of local neighborhood administrators. Participation was voluntary, and respondents were informed that the study aimed to understand residents' perceptions of leadership communication and neighborhood security. A total of 92 valid responses were obtained and analyzed. The sample size was considered acceptable for a simple linear regression model with one independent and one dependent variable, although the non-probability sampling technique limits generalizability beyond the studied community (Ahmed, 2024).

3.3 Instrument development and measurement

Data were collected using a structured, self-administered questionnaire. The instrument was developed for this study based on the conceptual framework of digital leadership communication, neighborhood coordination, and perceived neighborhood security. It was not adopted verbatim from a single standardized scale; instead, the items were constructed to match the local context of RT-level WhatsApp communication. The questionnaire consisted of closed-ended items measuring two constructs: leadership communication (independent variable) and perceived neighborhood security (dependent variable).

In Table 1, leadership communication refers to the neighborhood leader's ability to communicate clearly, actively, responsively, transparently, and in a coordinated manner through the WhatsApp group. This variable consisted of 16 items covering four dimensions: information clarity, communication activeness and responsiveness, coordination and direction, and language accessibility/transparency. Perceived neighborhood security refers to residents' subjective assessment of safety, preparedness, information flow, responsiveness, and cooperation in maintaining neighborhood security. This variable consisted of 8 items covering four dimensions: perceived safety, rapid dissemination of security information, resident responsiveness/preparedness, and cooperation/handling of disturbances.

All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This scale was retained because it is widely used in social research to measure attitudes and perceptions, offering a practical and analytically robust format when the construct is clearly defined, the items are clear, and the response options are balanced and easy to interpret (Ferrando et al., 2025).

Table 1. Operational definition and dimensions of the research constructs.

Construct	Operational definition	Dimensions	Number of items
Leadership communication (X)	Residents' perceptions of the RT head's ability to communicate, coordinate, and guide residents through the neighborhood WhatsApp group.	Information clarity; activeness and responsiveness; coordination and direction; language accessibility and transparency.	16
Perceived neighborhood security (Y)	Residents' subjective assessment of safety, preparedness, information flow, cooperation, and responsiveness to potential disturbances in the neighborhood.	Perceived safety, rapid dissemination of security information, resident responsiveness and preparedness, cooperation, and quick handling of disturbances.	8

Source: Developed by the authors, 2026.

3.4 Validity, reliability, and instrument limitations

The instrument's validity was addressed through construct-oriented item development. Each item was mapped to the operational definition and dimension of the relevant construct, as shown in (Tables 1 and 2). This procedure

was used to strengthen content validity and ensure that the questionnaire items represented the theoretical scope of leadership communication and perceived neighborhood security. The wording of the items was also adjusted to the local context of neighborhood WhatsApp communication so that respondents could understand the statements clearly.

Reliability was assessed using Cronbach's alpha to examine the internal consistency of the items within each construct. Because the study used a relatively small sample and two theoretically predefined constructs, the present analysis emphasizes content validity and reliability rather than claiming a complete psychometric validation of a new scale. Future research should involve a larger, more diverse sample to conduct exploratory or confirmatory factor analyses and to refine potentially redundant items.

3.5 Data collection and ethical procedures

Data were collected using a structured questionnaire distributed to eligible respondents. Before completing the questionnaire, participants were informed of the study's purpose, the voluntary nature of participation, and the confidentiality of their responses. Respondents were not asked to provide names, telephone numbers, WhatsApp chat content, or other direct personal identifiers. The data were analyzed only in aggregate form.

This study involved adult community respondents and, therefore, applied basic ethical safeguards for human participant research. Participation was voluntary, informed consent was obtained before questionnaire completion, and respondents could decline or withdraw from the study without any consequences. Because the study used an anonymous, minimal-risk perception survey and did not involve intervention, deception, sensitive personal data, or vulnerable participants, formal institutional ethics approval was not required under the authors' institutional practice. Nevertheless, the study followed the principles of voluntary participation, anonymity, confidentiality, and responsible data use.

3.6 Data analysis

The data were analyzed using descriptive statistics, reliability testing, and simple linear regression. Descriptive statistics were used to examine minimum, maximum, mean, and standard deviation values. Cronbach's alpha was used to assess internal consistency. Simple linear regression was then used to examine the association between WhatsApp-based leadership communication and perceived neighborhood security.

Before interpreting the regression result, the analysis considered the main assumptions of simple linear regression, including linearity, normality of residuals, homoscedasticity, and independence of residuals. Linearity and homoscedasticity can be assessed using scatterplots of standardized residuals and predicted values, residual normality using a normal probability plot or a residual normality test, and independence of residuals using the *Durbin-Watson* statistic. In line with the study's cross-sectional design, the regression coefficient is interpreted as a statistical association rather than as evidence of direct causation.

4. Results

4.1 Descriptive statistics of research variables

Descriptive statistics were used to examine the number of respondents, minimum and maximum scores, mean values, and standard deviations for each research variable. Through this analysis, the researchers obtained an initial overview of respondents' perceptions of the RT head's leadership communication through WhatsApp groups and perceived neighborhood security.

Table 3. Descriptive statistics of research variables.

Variable	N	Minimum	Maximum	Mean ± SD
Leadership communication (X)	92	40	80	66.03 ± 12.33
Perceived neighborhood security (Y)	92	22	40	34.58 ± 5.83

Source: Results of researcher data processing, 2026.

Based on Table 3, the leadership communication variable involved 92 respondents, with a minimum score of 40

and a maximum score of 80. The mean score was 66.03, with a standard deviation of 12.33. Meanwhile, perceived neighborhood security was also measured among 92 respondents, with a minimum score of 22, a maximum score of 40, a mean score of 34.58, and a standard deviation of 5.83. These findings indicate that respondents generally gave relatively high assessments to both leadership communication and perceived neighborhood security.

4.2 Instrument reliability

The reliability test in this study used Cronbach's alpha to assess the questionnaire items' internal consistency. A higher alpha value indicates stronger internal consistency among the items within the same variable. This test is important because the study relies on respondents' perceptions of leadership communication and perceived neighborhood security.

Table 4. Instrument reliability test.

Variables	Number of Items	Cronbach's Alpha	Interpretation
X – Leadership communication	16	0.994	Very reliable
Y – Neighborhood security	8	0.991	Very reliable

Source: Researcher data processing results, 2026

Based on Table 4, the leadership communication variable, comprising 16 items, has a Cronbach's alpha of 0.994, while the perceived neighborhood security variable, comprising 8 items, has a Cronbach's alpha of 0.991. Both values fall into the very reliable category. These results indicate very strong internal consistency among items within each construct. However, the extremely high alpha values should be interpreted cautiously because they may also indicate item redundancy or highly overlapping item wording. Therefore, although the instrument is reliable for the present analysis, future studies should refine the items and consider factor analysis with a larger sample to ensure that each item contributes unique information to the construct.

4.3 Communication indicators with the highest average scores

In addition to examining the aggregate values of variables, this study also identified the most prominent indicators in respondents' perceptions. For the leadership communication variable, analyzing the indicators with the highest average scores reveals which aspects of communication are most appreciated by residents

Table 5. Five communication indicators with the highest average scores.

Highest communication indicator	Average
Does the RT Head convey information clearly through the WhatsApp group?	4.18
Does the RT Head actively communicate in the WhatsApp group?	4.16
Is the language used by the RT Head easy to understand?	4.16
Is the RT Head able to coordinate activities via WhatsApp group?	4.15
Does the RT Head provide clear directions for each piece of information?	4.15

Source: Results of researcher data processing, 2026.

Based on Table 5, the indicator with the highest mean score was the RT head's ability to convey information clearly through the WhatsApp group, with a score of 4.18. This was followed by the RT head's active communication and use of easily understood language, each with a score of 4.16. The next two indicators were the ability to coordinate activities and provide clear directions, each with a score of 4.15. These findings indicate that the main strengths of the RT head's leadership communication lie in clarity, activeness, understandable language, and coordinating capacity.

4.4 Perceived neighborhood security indicators with the highest average scores

This section identifies which perceived neighborhood security indicators received the highest ratings from respondents. This step is important because neighborhood security in this study is understood not only as an objective condition but also as a social perception shaped by residents' experiences in receiving information, coordinating actions, and responding to potential disturbances

Table 6. Five perceived neighborhood security indicators with the highest average scores.

Highest security indicator	Average
Are residents responsive to potential disturbances?	4.37
Does my neighborhood feel safe?	4.34
Is security information quickly disseminated through WhatsApp groups?	4.33
Do residents cooperate in maintaining neighborhood security?	4.33
Are security disturbances in the neighborhood handled quickly?	4.32

Source: Results of researcher data processing, 2026.

Based on Table 6, the highest-rated perceived security indicator was residents' responsiveness to potential disturbances, with a mean score of 4.37. Next, the sense of safety in the neighborhood scored 4.34, followed by the rapid dissemination of security information and residents' cooperation in maintaining security, each with a score of 4.33. The ability to handle security disturbances quickly scored 4.32. These results indicate that perceived neighborhood security in this study is most strongly reflected in rapid response, a sense of safety, effective information dissemination, and resident cooperation. Therefore, residents' perceived security is closely related to active social coordination and not solely to the presence of physical security facilities.

4.5 Simple linear regression analysis

The core stage of this study was to test whether the RT head's leadership communication via WhatsApp groups was associated with perceived neighborhood security. For this purpose, simple linear regression analysis was used. This analysis aimed to determine the strength of the relationship, the contribution of the independent variable to the dependent variable, the significance of the regression model, and the direction and magnitude of the regression coefficient.

Table 7. Regression model summary.

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.750	0.562	0.557	3.876

Source: Results of researcher data processing, 2026.

Based on Table 7, the R value of 0.750 indicates a strong relationship between leadership communication via WhatsApp groups and perceived neighborhood security. Meanwhile, the R Square value of 0.562 means that 56.2% of the variation in perceived neighborhood security can be statistically explained by leadership communication. The remaining 43.8% is associated with other factors outside the research model, such as offline patrol practices, physical security infrastructure, individual prior experiences, social cohesion, digital literacy, or local crime dynamics. The Adjusted R-Square value of 0.557 confirms that this model is relatively stable.

Table 8. ANOVA test of regression model.

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	1736.072	1	1736.072	115.533	< 0.001
Residual	1352.396	90	15.027	-	-
Total	3088.467	91	-	-	-

Source: Results of researcher data processing, 2026.

The results in Table 8 show that the calculated F value is 115.533, with a significance level of < 0.001. This finding indicates that the regression model constructed in this study is statistically significant. In other words, leadership communication has a significant statistical relationship with perceived neighborhood security. The ANOVA test confirms that the regression model was not formed by chance.

Table 9. Regression coefficients.

Model	B	Std. Error	t	Sig.
Constant	11.192	2.213	5.058	< 0.001
Leadership Communication (X)	0.354	0.033	10.749	< 0.001

Source: Results of researcher data processing, 2026.

Based on Table 9, the regression equation is: Y = 11.192 + 0.354X. The constant value of 11.192 indicates the estimated perceived neighborhood security score when leadership communication is held constant. Meanwhile, the regression coefficient of 0.354 indicates that a one-unit increase in the quality of leadership communication is associated with a 0.354-unit increase in perceived neighborhood security. The t value of 10.749, with a p-value of <0.001, confirms that the association is positive and statistically significant. Thus, the clearer, more active, more open, and more effective the RT head's communication in the WhatsApp group, the higher the residents' perceived sense of security, coordination, and preparedness within the neighborhood.

4.6 Regression assumption considerations

The use of simple linear regression requires attention to several assumptions: linearity between the independent and dependent variables, normally distributed residuals, homoscedastic residual variance, and independence of residuals. In this study, these assumptions were considered before interpreting the model. However, because the study relies on cross-sectional perception data and a nonprobability sample, the regression results should be interpreted as evidence of statistical association rather than proof of a causal effect. Future studies should present complete diagnostic outputs, including residual plots, normality statistics, and the Durbin-Watson statistic, to enhance transparency in model assessment.

5. Discussion

The findings of this study indicate that WhatsApp-based leadership communication is positively and significantly associated with perceived neighborhood security. This result confirms that local digital leadership communication is not merely a channel for delivering information, but also an important mechanism for building coordination, responsiveness, and a sense of safety among residents. The strong correlation and substantial coefficient of determination suggest that leadership communication plays a major role in shaping residents' perceptions of neighborhood security.

The descriptive findings reinforce this conclusion. The highest-rated communication indicators were clarity of information, leader activeness, understandable language, coordination ability, and clear directions. These elements suggest that residents value communication not only because information is delivered, but because it is delivered in a way that is accessible, timely, and practically useful. In the context of neighborhood WhatsApp groups, effective leadership communication appears to reduce uncertainty, support collective understanding, and facilitate coordinated responses to neighborhood issues.

The findings on perceived neighborhood security also show that residents associate security with responsiveness, a sense of safety, rapid dissemination of information, cooperation, and the quick handling of disturbances. This indicates that perceived neighborhood security is socially produced through communication and coordination, rather than relying solely on formal security measures or physical infrastructure. In this sense, WhatsApp groups serve not only as communication tools but also as social coordination platforms, enabling residents to remain informed, connected, and ready to respond.

At the same time, these findings should be interpreted critically. First, WhatsApp-based governance may

accelerate information circulation, but speed does not automatically guarantee accuracy. In a security context, unverified messages, rumors, or ambiguous warnings can create unnecessary anxiety or prompt inappropriate responses. Therefore, neighborhood leaders need to function not only as information senders but also as verifiers, moderators, and clarifiers of messages circulating in the group.

Second, digital participation in neighborhood WhatsApp groups may be unequal. Residents with better access to smartphones, stronger digital literacy, more flexible time, or closer relationships with neighborhood leaders may participate more actively than others. Conversely, elderly residents, residents with limited internet access, less digitally confident users, or those who are silent in the group may be less represented in digital coordination. This means that WhatsApp-based communication should complement, not replace, face-to-face communication, patrol coordination, and other offline community mechanisms.

Third, the relationship between leadership communication and neighborhood security should not be interpreted as direct evidence that WhatsApp communication reduces crime. This study measures perceived security rather than objective security indicators such as crime reports, police data, or verified incident records. Therefore, the findings show that good leadership communication is associated with residents' sense of safety, preparedness, and coordination. Future research should combine perception surveys with objective security data to examine whether digital communication also contributes to measurable reductions in security disturbances.

Fourth, the very high Cronbach's alpha values suggest strong internal consistency, but they may also indicate that some items are semantically similar. From a measurement perspective, this provides reliability but also raises the possibility of item redundancy. Future instrument refinement should reduce overlapping items and test the dimensional structure through exploratory or confirmatory factor analysis using a larger sample.

Overall, this study demonstrates that leadership communication through neighborhood WhatsApp groups has practical significance for community life. The RT head's communication is not only about message delivery but also a strategic element in shaping trust, coordination, and perceived neighborhood security. Therefore, WhatsApp-based leadership communication should be understood as an important component of local social governance in digitally connected communities, while still requiring ethical moderation, verification practices, inclusive participation, and complementary offline engagement.

6. Conclusions

Based on the findings, it can be concluded that WhatsApp-based leadership communication is positively and significantly associated with perceived neighborhood security. The results of the simple linear regression analysis show a strong relationship between leadership communication and perceived neighborhood security, with an R-squared value of 0.562. This indicates that 56.2% of the variation in perceived neighborhood security can be statistically explained by leadership communication. The regression equation, $Y = 11.192 + 0.354X$, further confirms that every increase in the quality of leadership communication is associated with greater perceived neighborhood security. These findings demonstrate that the clearer, more active, and more coordinated the RT head's communication through WhatsApp groups, the higher the residents' perceived sense of security, preparedness, and responsiveness to potential disturbances.

Furthermore, the descriptive results show that residents highly value clarity of information, leader activeness, understandable language, coordination ability, and clear directions in the RT head's communication. At the same time, perceived neighborhood security is most strongly reflected in residents' responsiveness to disturbances, a sense of safety, rapid dissemination of information, and cooperation in maintaining security. These findings indicate that neighborhood security is not shaped solely by physical security facilities, but also by communication processes that strengthen coordination and collective awareness among residents.

This study contributes to discussions on digital leadership, local governance, and community security by showing how neighborhood WhatsApp groups can function as platforms for coordination and preparedness. However, the findings should be interpreted within the limits of a cross-sectional, perception-based survey using purposive sampling. The study does not measure objective crime reduction, and it cannot establish direct causality. Future research should use larger samples, probability-based sampling where possible, mixed methods, factor analysis, and objective security indicators to obtain a more comprehensive understanding of the role of WhatsApp-based leadership communication in neighborhood security.

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8. Authors' Contributions

Nelson Avdisius Nengo: contributed to the conceptualization of the research background, methodology, and data curation. *Mustofa Abdul Azis*: contributed to data analysis, data validation, and data interpretation. *Veranus Sidharta*: methodology; data analysis; validation; supervision; writing – review & editing. *Anisti*: data analysis; validation; supervision; writing – review & editing.

9. Conflicts of Interest

All authors declare that there is no conflict of interest in this research with any party.

10. Ethics Approval and Informed Consent

This study involved adult community respondents and used an anonymous, minimal-risk perception survey. Formal institutional ethics approval was not required under the authors' institutional practice. Nevertheless, the study implemented ethical safeguards, including voluntary participation, informed consent before questionnaire completion, anonymity, confidentiality, and aggregate reporting of data. No names, telephone numbers, WhatsApp chat content, or direct personal identifiers were collected.

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Institutional Review Board Statement

Yes applicable. According to the regulations of Bina Sarana Informatika University and applicable national guidelines, anonymous minimal-risk survey research involving adult participants does not require formal ethics committee approval. Participation was voluntary, and informed consent was obtained from all respondents.

Informed Consent Statement

Yes applicable. Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to confidentiality and ethical considerations.