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## Research Article

### Analysis of Relationship Between Conversational Media Applications and Social Media with Social Capital in Disaster Mitigation at the area of Bogor Regency, Indonesia

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#### ABSTRACT

The study analyzes the relationship between conversational applications (WhatsApp) and social media (Facebook and Instagram) through social capital in disaster mitigation at the Ciliwung Riverbank, Tugu Utara Village. This study used Mayfield's social media theory and Lasser's social capital theory in analyzing disaster mitigation. This study used a post-positivistic paradigm and combined two qualitative and quantitative approaches. Data collection techniques were carried out by direct observation, in-depth interviews, document studies, and distributing questionnaires through survey techniques. Qualitative data analysis used the Miles and Huberman model and quantitatively used descriptive statistics with correlation analysis. The results showed that the relationship between conversational media applications and social media with social capital was highly correlated and obtained a value above 0.75. This showed a very strong relationship before, during, and after the disaster. Users of conversational media applications and social media build social capital to help each other, build social networks and social relations, trust and cooperation to achieve common goals. The power of social capital through the application of conversational media and social media forms social interaction and social communication based on technology or digital in disaster areas.

**Keywords:** *Conversational Media Applications, Disaster Mitigation, Social Capital, Social Media*

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## **Introduction**

Tugu Utara Village is a prone disaster area (Irwan, 2021); (Irwan et al., 2020). The disaster results in material (economic) losses, environmental damage, infrastructural damage, and even community psychology. Disasters in Tugu Utara Village usually occur in the rainy season, and the duration of the disaster is more than one week. The number of catastrophes in Tugu Utara Village in 2015-2019 was 26 events, consisting of 15 landslide events and 11 flood events (Kantor Desa Tugu Utara, 2019). Communities are experiencing disaster stress in Tugu Utara Village as a process for preparedness and minimizing the impact of the disaster. It relates to the community's need to understand the dangerous elements due to the catastrophe they experience Nurjanah Sugiharto R, Kuswanda D, Siswanto BP, (2011); Nurjannah Ramadhani Syamira, (2020) Furthermore, people who experience disasters certainly have their own experiences and can assist disaster preparedness (Huggin Thomas J, Robin Peace, Stephen R. Hill, David M. Johnston, 2015). The disaster that occurred in the Tugu Utara Village area was a force in building a system to raise and grow to carry out future innovations.

According to (Longstaff H. Patricia, Nicholas J. Armstrong, Keli Perrin, Whitney May Parker, 2010); (Longstaff P., 2005). they state that the disaster experienced by the community can arise from threats and carry out strategies and adaptations possessed by actors who experienced the pressure or shock they experienced. The shocks or pressures encountered have values to help and strengthen each other among disaster victims. It builds the capacity to enhance the social capital of communities in disaster areas. In line with the view (Karimatunnisa Aisyah, 2018) that people who rise in the face of disasters are encouraged to build and strengthen social capital. Disasters that occur at the Ciliwung Riverbank are influenced by social capital to increase and grow in daily life activities (Irwan, 2021a).

Social capital is an approach to expanding social networks and building values in people's lives. Social capital has a central pillar (Putnam RD, 2000) in emerging and extensive networks to help each other. This will encourage mutual trust in carrying out activities, communicating,

and coordinating in the face of disasters. The power of mutual trust is related to the way of thinking and acting to cooperate with fellow disaster victims. Furthermore, the power of social capital encourages building social relations between one another (Fukuyama, 2002). The social capital built creates communication and interaction to achieve common goals. The advancement and strengthening of social capital in expanding social networks are strengthened by technology, including social media (Irwan et al., 2020). Thus, social capital built-in disaster areas are maintained by networks using technology and facilitating information.

The community of Tugu Utara Village, in dealing with disasters, is influenced by the development of digital technology, especially in the use of conversational media applications and social media. The use of conversational media applications and social media can prepare for disasters and minimize the impact on disaster events (Irwan, 2021a). Furthermore, the application of conversational media and social media as a source of disseminating and distributing information related to the disaster experience. According to (Mayfield A., 2008), social media can increase participation in taking action to achieve a goal. Besides that, they can carry out related communication and expand social relations. Therefore, this study analyzes the relationship between conversational media applications and social media with social capital in disaster mitigation at the Ciliwung Riverbank, Tugu Utara Village.

This study uses social media theory from (Mayfield A., 2008) and social capital theory from (Lesser E., 2000) in disaster mitigation at Ciliwung Riverbank. Social media is a network that eases all levels of society to obtain information and convey ideas. Social media is characterized by the strength of opinions about the conditions and situations experienced (Barisione, M., Michailidou, A., & Airoidi, 2017). The power of social media influences people's actions and behavior. Indirectly, social media is an instrument and embedded in human actions and behavior (Mosco Vincent, 2017). Furthermore, social media has become a means to extend the networks at all levels of society. The power of social media drives policy-making and mechanisms for change. Social media can

control, expand networks, build trust and add insight to events that occurred. It shows that social media strengthens social relations and leads to community integration in taking action to achieve a goal (Cahyono, 2016); (Irwan, 2021b).

The power of social media encourages openness in accessing information and is not limited by space and time. It is in line with the view (Bahri, 2021) that social media has opened up public spaces without any social and political limitations in implementing policies during a disaster. The use of social media accepts various positive ways of acting and thinking for the future. This shows that the social media movement strengthens social relations in communicating and interacting to achieve common goals. For example, according to (Rudianto., 2015), he stated that social media makes it easy to map locations in areas experiencing disasters. Social media that is built provides the principle of openness in obtaining information, the principle of involvement in taking action, and easy access to information (Mayfield A., 2008). Involvement, facilitating conversation, openness in obtaining information, providing a forum for communication, and connecting information makes it easier to take actions and common goals. The principle built on social media's power is known as social capital in sociological studies.

Social capital in disaster areas can strengthen the values of togetherness through social media and conversational application media to not leave the settlement. According to (Lesser E., 2000), social capital is built with the power of solidarity, mobilizing resources, forming shared behavior in achieving common goals, and ease accessing information. The social capital built is related to social media that is open to disseminating information. In line with (Jung Lee., 2017) social media is a force and influence on social capital by expanding social networks and creating trust values. Social capital is built as the social networks at the micro, meso, to macro levels. Social networks that occur in disaster areas are encouraged by the ease of accessing information and providing benefits. The content of the information describes the conditions experienced by disaster victims. Social media that is built creates

mobilization solidarity in taking action (Ali & Eriyanto, 2021).

The ease of obtaining and delivering information builds solidarity values to take action simultaneously. It encourages and integrates digital-based social bonds and makes the value of trust in people's lives. The actions taken by the actors involved will not be separated from the mutually agreed rules. This strength is undoubtedly influenced by the ease of using social media and making digital-based interactions. The interaction and communication built are recoveries, risk reduction, and emergency response. In addition, social capital through social media is closely related to social networks, trust, and collective action.

## **Methods**

This study used a post-positivistic paradigm by combining two approaches, namely qualitative and quantitative approaches (Creswell, 2010); (Garna Judistira K., 1999). Qualitative data collection techniques started with direct observation, in-depth interviews, and document studies to strengthen the field data obtained. Quantitatively, the data collection technique started with structured discussions and distributing questionnaires through survey techniques. The analysis unit in this study was at the community and individual levels in the disaster-affected area. Qualitative data analysis used the model (Miles, 1992) and qualitatively used descriptive statistical analysis with correlation analysis. The method used to obtain accurate and precise data was in accordance with the study's title.

## **Results and Discussion**

Application of conversational and social media in disaster areas as a force to obtain and share information related to disaster risk reduction, rescue, and recovery. This encourages people not to leave the settlements occupied. Besides that, the application of conversational media and social media has been embedded in human actions and behavior. It is in line with the view (Mosco Vincent, 2017) that social media and conversational media applications do not become instruments but have been embedded in human actions.

This study showed that the application of conversational media and social media was related to strength rather than social capital. This strength encourages carrying out and expanding social networks in forming the trust of fellow disaster victims to make mutual agreements. Therefore, the web is carried out to obtain information about disasters, including groups in conversational media applications and social media to create a trust to get the mutual agreement in disseminating information that is not in accordance with the rules.

This study used Pearson correlation in looking the relationship between conversational media applications and social media with social capital in an area that experiences disasters. Relationship analysis in this study used hypothesis testing, namely H0: there is no correlation between the application of conversation and social media with social capital, H1: there is a correlation between the application of conversation and social media with social capital. The building is, of course, related to the strength in the use of media conversation applications and social media in strengthening the social capital of the community at the Ciliwung Riverbank.

The strength in conversational media applications and social media use is closely related to the social capital built in the community so that people do not leave the settlements that have been occupied so far. The relationship built on the community in the disaster area is not only when experiencing pressure in the form of a disaster but before and after the disaster at the Ciliwung Riverbank.

People who experience disasters at the Ciliwung Riverbank during the rainy season. The types of disasters experienced in the form of floods and landslides. The results showed that the terminology before the disaster could be seen in the months that did not experience a disaster, namely June, July, August, September, and December. Furthermore, the terminology during the catastrophe in the rainy season, namely February, March, and April, and the terminology after the disaster can be seen after the disaster.

The analysis results using Pearson correlation analysis during SPSS 22 were three times of occurrence: before the disaster, during the disaster, and after the disaster. Therefore, the results of the Pearson correlation carried out can be presented in the table below.

Table 1. Correlation Value of Conversational Media Applications and Social Media with Social Capital

Location	Time	Correlation
Tugu Utara Village	Before Disaster	0.995**
	During Disaster	0.995**
	After Disaster	0.997**

Source : processed data using SPSS 22,(Irwan, 2021a)

Description: \*\* : Signifficant at  $\alpha = 1$  percent ,

\*: Signifficant at  $\alpha = 5$  percent

Table 1 above shows that the Pearson correlation of Tugu Utara Village was very significant between the application of conversational media and social media with social capital in the disaster area. Significance was seen at the time of the incident in terms of before, during, and after the disaster at a significance level of 5 percent. Pearson correlation results showed that conversational media applications and social media with social capital obtained a value above 0.75.

The results showed that the relationship between conversational applications (WhatsApp) and social media (Facebook and Instagram) with social capital was solid before the disaster, during the disaster, and after the disaster. The relationship during this period categorized the more time spent providing information about floods and landslides, the stronger the social relations of the community in the disaster area. In addition, the stronger the access to disaster information, the stronger

the social capital built in the community in the disaster area at the Ciliwung Riverbank.

This category shows the strength of social capital related to technology-based or digital social networks. For example, the relationship between conversational applications (WhatsApp) and social media (Facebook and Instagram) with social capital in Tugu Utara village was 0.995 (very strong relationship), during disaster 0.995 (very strong relationship), and 0.997 (very strong relationship). These results show that the strength of social capital in the community experiencing the disasters in the Tugu Utara Village area can be seen that the correlation value was very high and reached 0.99. The research results were conducted with Pearson correlation analysis by showing several variables of conversation application

(WhatsApp) and social media (Facebook and Instagram) with social capital. The variables of conversational applications (WhatsApp) and social media (Facebook and Instagram) obtained the most significant contribution before the disaster on the openness variable in obtaining information of 0.982 during the disaster and after the disaster to the contribution to facilitate dialogue in the catastrophe was 0.980 and 0.996. On the other hand, while the social capital variable gave the biggest contribution before the disaster, such as resource mobilization of 0.990, during the disaster, there was an indicator of solidarity of 0.991. After the disaster, there was an information network indicator of 0.998. It can be seen in the following table.

Table 2. Indicators Contribution on Conversational Application Variables (Whatsapp), Social Media (Facebook and Instagram) and Social Capital

Variable	Indicator	Tugu Utara		
		Before Disaster	During Disaster	After Disaster
Conversation Apps) and Social Media	Participation of household members	0.962**	0.954**	0.991**
	Facilitating dialogue	0.973**	0.980**	0.996**
	Provide a place to communicate	0.969**	0.978**	0.988**
	Support Openness	0.982**	0.975**	0.980**
	Information Network	0.900**	0.891**	0.868**
Social Capital	Information network	0.976**	0.961**	0.998**
	Solidarity	0.983**	0.991**	0.997**
	Behavioral formation together	0.987**	0.980**	0.995**
	Resource mobilization	0.990**	0.978**	0.993**
	Achievement of common goals	0.910**	0.920	0.943**

Source : data using SPSS 22; (Irwan, 2021a)

Description : \*\* : Significant at  $\alpha = 1$  percent ; \* : Significant at  $\alpha = 5$  persen

Table 2 shows the very strong relationship between conversational applications (WhatsApp) and social media (Facebook and Instagram) with social capital in disaster mitigation. Furthermore, conversational applications (WhatsApp) and social media (Facebook and Instagram) make it easier to maintain togetherness and concern for disaster areas.

**Discussion**

Conversation applications (WhatsApp) and social media (Facebook and Instagram) ease the public to obtain information about disasters to improve the knowledge and experience handling disasters in the Ciliwung Riverbank area. It is in line with the view (Houston, J. B., Pfefferbaum, B. & C. E., 2012) that the power of social media can obtain reports on disaster events that focus on the human condition, the environment, and the natural surroundings.

The use of conversational applications (WhatsApp) and social media (Facebook and Instagram) in the Ciliwung Riverbank area as social networking sites has contributed to strengthening the community's social capital. The impact that arises as a result of the disaster raises a sense of concern for fellow disaster victims. This is in line with the view (Tierney, Lindell, & Perry, 2011) that the community's concern for fellow disaster victims is high to help each other. The power of mutual assistance has become a built tradition in disaster areas. Providing information about disasters can reduce the impact of disasters that occur. This finding is in line with the view (Hoon, L.L, Shen, N.K., & Mei, 2015) that people have a very high value of caring because they face pressure or shock due to disasters. Disasters occur in the community are associated with death. Hence, a sense of concern arises to continue to care for fellow disaster victims.

Conversational applications (WhatsApp) and social media (Facebook and Instagram) give information not only reporting on field conditions but also improving the experience and knowledge about disasters. Conversational applications (WhatsApp) and social media (Facebook and Instagram) have become instruments that create the trust in providing information. It is proven that people create WhatsApp, Facebook, and Instagram groups to avoid information not in accordance with fact or called hoaxes. The actors involved in this group are local communities and government elements, including the village, sub-district, district heads, and several societies that share information, knowledge, and experience in dealing with disasters.

The power of forming groups on chat applications (WhatsApp) and social media (Facebook and Instagram) encourages networking or strengthening social relationships. The community in North Tugu Village improves experience and knowledge about disasters among disaster victims and from the elements of people who have been involved in the education field. Reducing disaster impact is related to experience. Extensive social networks encourage people to strengthen social relations between levels. This level is not only at the household level or between communities (micro) at the

meso to the macro level. The use of conversational applications (WhatsApp) and social media (Facebook and Instagram) plays a role in achieving common goals in disaster areas. The role played is related to a solid relationship to help each other.

Social networks built through conversational applications (WhatsApp) and social media (Facebook and Instagram) can bind in providing information about disasters without limitation of time and place. The community can continuously acquire and improve disaster risk reduction, rescue, and recovery knowledge. Therefore, conversational applications (WhatsApp) and social media (Facebook and Instagram) simplify achieving joint action in expanding information networks and mobilizing resources. The power of using conversational applications (WhatsApp) and social media (Facebook and Instagram) can realize the value of sensitivity among disaster victims. The sense of caring and helping each other has increased to a saluted strength as a disaster victim. Individual attitudes have been lost to the Ciliwung Riverbank disaster area community. It is in line with the view (Pantti, 2019); (Munandar, 2021) that disasters cause people to suffer and become victims of nature who are not friendly with humans.

Conversational applications (WhatsApp) and social media (Facebook and Instagram) encourage cooperation, concern, trust, sensitivity, mutual help, and strengthening and expanding social networks. This encourages and strengthens the community not to leave the settlements that have been occupied for decades. Conversational applications (WhatsApp) and social media (Facebook and Instagram) have become a forum for dialogue or discussion, communicating digitally, engaging in providing digital-based information, and expanding digital-based networks. These conditions and situations in the study of sociology have been in digital-based interaction and communication and secondary interactions. Besides that, the actions taken are not only during a disaster before and after a disaster occurs.

Conversational applications (WhatsApp) and social media (Facebook and Instagram) have built community solidarity in dealing with disasters. Solidarity values are constructed to

have a mutual sense of shelter and attitude to help each other. In sociology, it is called empathy. The power of conversational applications (WhatsApp) and social media (Facebook and Instagram) increases the value of awareness, dependence, and togetherness about obtaining information about disasters. As a result, the Ciliwung Riverbank community raised a high spirit of mutual cooperation and building strength from social capital before, during, and after the disaster.

Conversational applications (WhatsApp) and social media (Facebook and Instagram) form behavior in achieving common goals. Conversational apps (WhatsApp) and social media (Facebook and Instagram) accelerate disaster information and encourage more robust relationships. The social relations built in the disaster area community are in the form of cooperation to take collective action. The community also makes the action by building higher house foundations and even two-story houses. The goals in reducing disaster risk are obtained. Furthermore, the congregation built higher housing equipment, planted trees, and even cleaned the gutters together.

The actions were taken as a form of strength from the community's social capital in the disaster area. The sense of helping before a disaster, during a disaster, and after a disaster is manifested by providing loans in the form of necessities of life or lending money to help each other. The conditions of social capital e built before the disaster are to help provide information about, help each other move goods before the disaster and provide information about protecting the environment and not littering. During a disaster, they help move the goods, so they are not affected by floods and landslides, help fellow disaster victims, help to provide information on places of rescue and provide mutual assistance to victims in need. After the disaster, the power of social capital is built to help each other clean houses and sewers and help neighbors build house foundations

## Conclusion

The use of chat applications (WhatsApp) and social media (Facebook and Instagram) strengthen social capital and reduce the impact of disaster risk reduction, rescue and recovery.

Conversational applications (WhatsApp) and social media (Facebook and Instagram) are not only the instruments, but they become the strength in building social relations, social networks, social relationships, trust, and concern for disaster victims. In addition, indirectly conversational applications (WhatsApp) and social media (Facebook and Instagram) have built technology-based or digital-based interactions and communications. Conversational applications (WhatsApp) and social media (Facebook and Instagram) have expanded the information network to strengthen solidarity with disaster victims. The action in achieving common goals drives this strength. Resource mobilization is contained in the human resources elements, network resources, and material resources. Human resources related to disaster preparedness, whether knowledge and experience in disaster risk reduction, rescue, and recovery Network resources encourage to expand information about disasters and material resources related to obtaining assistance and comfortable housing. The findings also affect how people perceive conversational applications (WhatsApp) and social media (Facebook and Instagram). So far, conversational applications (WhatsApp) and social media (Facebook and Instagram) have been seen as hoax information dissemination while raising social capital's power in disaster areas. It shows as a media of information that can be trusted, accounted for, builds relationships, and reduces hoaxes in disaster areas. The contribution of further research can be analyzed on the social media power in strengthening community solidarity, especially regarding gender. Disaster occurrence in the disaster areas allows further research to reveal more about social media and gender

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