2023
A new decade for social changes
“Polisi RW” it’s effective in crime prevention? experience
Metro Jaya Police Department, Indonesia

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Abstract. The rise of crime after the Covid-19 pandemic in Jakarta, Jakarta's position as the capital of Indonesia and the transformation of precision police spawned the concept of Polisi RW adapted from community policing, hotspot policing and predictive policing. Polisi RW are expected to be able to conduct crime prevention efforts in the Metro Jaya Regional Police Work Area. The purpose of this study is to test the effectiveness of Polisi RW in reducing the number of crimes and accelerating crime reporting services handled at Metro Jaya Police Department. A quasi-experimental one group pre-post test was selected to test the application of Polisi RW in crime prevention with indicators of reduced crime. The data used in this study is data on the number of crimes reports in the January-February 2023 period as pre and as post period March-April 2023. In addition to the difference between the pre and post ranges, researchers also took measurements in the period March-April 2022 with March-April 2023 as comparison data. Paired sample t-test is used to determine the difference and Cohen’s effect size to determine the magnitude of the effect of Polisi RW intervention. Test results on differences in the number of crime reports for the period before and after the implementation of Polisi RW p-value = 0.046, Cohen’s effect size of 0.451; The number of crime reports for the period March-April 2022 with March-April 2023 was found to be p=value 0.003, Cohen’s d= 1.158. There is an influence of Polisi RW on crime prevention and acceleration of the process of solving crime reports in the Metro Jaya police department. Re-measurement is required after 6 months of application.

Keywords. Polisi RW, Community policing, hotspot policing, predictive policing, Metro Jaya police department

1. Introduction
The 1994 international police executive symposium agreed on partnerships between police and communities in crime prevention. This partnership is referred to as community. Purdy (2012) explains that community policing responds to police reform and modernization oriented towards the community's needs. On this basis policing (Verma, Das & Abraham (2012). Indonesia has adopted it since 2005 (see Regulation of the Chief Indonesian Police No. 7 year 2008). In its development, community policing in Indonesia was renewed three times, namely in 2005, 2008, and 2015.
The journey of community policing in Indonesia has changed based on adjustments to the development of policing worldwide. In 2015, one village per police officer was born. The purpose of the one village, one police officer is the adoption of community-oriented policing. Implementing community policing in an increasingly complex era, especially with the arrival of the Industrial Revolution 4.0 and Society 5.0, has spurred the police to keep up with developments. The purpose of the police always adapting and transforming the methods of carrying out their duties is to prevent crime and improve police services, which is also one of the points in the Indonesian police chief's programmed with the slogan "precision." Precision is an acronym for predictiveness, responsiveness, transparency, and justice (Hasibuan, 2021).

In the context of crime prevention, it is carried out to reduce crime in the Indonesian region, which has risen again after the COVID-19 pandemic. As for the annual aggregate total crime and crime rate in Indonesia, illustrated in the figure below, they decreased from 2016 to 2021. However, it returned to high levels after introducing restrictions on social activities due to COVID-19, namely in 2022.

![Graph showing Indonesian crime statistics (BPS, 2019; 2022; Indonesian Police, 2022)](image)

The number of crimes mentioned above has increased after the restriction of social activities in 2022 compared to the previous year. Regionally, the Metro Jaya Regional Police ranked first with the highest number of crimes in 2018, with 34,655 cases. In 2022, the number decreased to 29,103, ranking second after the North Sumatra Regional Police (Indonesian Bureau of Statistics, 2019;2022). Furthermore, BPS in the criminal statistics explained the risk of being exposed to crime according to provinces in the 2019 and 2021 periods. The highest in 2019 was North Sulawesi, with 416 cases per 100,000 population, and the lowest was Central Java, with twenty-seven cases per 100,000 population. Meanwhile, in 2022, the highest was West Papua Police Department, with 289 cases per 100,000 population, while the lowest was West Java, with fifteen cases per 100,000 population. Metro Jaya Police Department in the 2019 period ranked 20th with 137 cases, while in the 2022 period it increased drastically to second place with 277 cases out of 100,000. Reflecting on the data above, the level of risk of being affected by crime in Metro Jaya Police Department for the 2019–2022 period has increased by more than 100%.

On this basis, the Metropolitan Police initiated the "Polisi RW" program to reduce the crime rate. Polisi RW are assigned to the hamlet area. Polisi RW are part of the community police, which historically existed in 2011, and its implementation has been assessed in RW 012 Pegangsaan Dua Urban Village, Kelapa Gading District (Jauhari, 2011); and Kebayoran Lama
District (Ardana, 2011). Furthermore, in Jauhari’s (2011) research, the implementation of Polisi RW in RW 012 Pegangsaan Dua Kelapa Gading Village is still not up to ISO 9001-2008 (service quality standards), while Ardhana (2011) found that the implementation has not been achieved as a result of the unavailability of standard parameters to measure its success.

The Polisi RW, which was re-initiated after the COVID-19 pandemic in the Metro Jaya Police area, has the essence of creating security and order in smaller community groups. Polisi RW is a development of Bhabinkamtibmas adopted from community policing, which operates at the village level (Braga, 2005; Weisburd, Braga, Groff & Wooditch, 2017). Bringing services closer to the community is productive in overcoming the problem of community disorder. In addition, in problem-oriented policing, the Bhabinkamtibmas program is maintained to bring police services closer to the community by creating a mobile application named "ada polisi". This application is expected to be an innovation in accelerating the process of resolving crime reports by cutting the space and time for reporting from the community.

2. Concept

Polisi RW is an amalgamation of community policing, area-based policing, proactive policing, and predictive policing. An illustration of the adoption of the policing concept can be seen in the figure below:

![Polisi RW Concept Diagram](image)

The concept of community policing here is that the Polisi RW will later be assigned to the Hamlet area, which, by getting closer to the community, as Braga revealed, can establish closeness to the community, which leads to the willingness and ability of the community to then cooperate with the police about police services (Braga, 2005).

Hotspot policing is based on the theories of rational choice, routine activity, and environmental criminology (Braga & Clarke, 2014). These theories include the calculation of profit and loss, the tendency of offenders to be in the same space and time as their targets, and environmental criminology, which is more about exploring the distribution and interaction
between victims, offenders, and the surrounding environment. Hotspot policing can narrow the police service area, especially in surveillance and crime prevention (Braga, 2005; Ariel & Patridge, 2017; Braga et al., 2019). Ariel & Partridge (2017), who researched policing around bus stops, found that it impacted reducing police service calls in California. However, Braga et al. (2019a; 2019b) further revealed the effectiveness of hotspot policing to be significant, with small average effect sizes in neighborhood’s in general (Braga et al., 2019a) and neighborhood’s in particular (Braga et al., 2019b).

Predictive Policing is a policing model that utilizes the help of information technology, in particular, to make prevention efforts through "Big Data” and dynamic environmental information such as weather or traffic data, targeting robberies, car thefts, pickpocketing, or gang violence (Egbert & Leese, 2021); and also the use of Artificial intelligence in the form of applications McDaniel & Pease, 2021). This concept can be applied by analyzing police call data originating from the same area, processing it with the incorporation of tactical crime mapping techniques, and then using it to patrol the prioritized areas. There are several examples of predictive policing today, including the Crime Anticipation System/ CAS, , the Harm Assessment Risk Tool/ HART (Hardyns & Rummens, 2018) and so on.

3. Methods

This quantitative research design uses a one-group quasi-experiment approach that measures the crime rate before and after the Polisi RW intervention at Metro Jaya Police Department.

Table 1 Design of a quasi-experimental study before and after intervention two months before and after implementation

<table>
<thead>
<tr>
<th>Before Polisi RW Implementation (January-February 2023)</th>
<th>treatment (Polisi RW implementation*)</th>
<th>After Polisi RW Implementation (March-April 2023)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of crimes</td>
<td>O1</td>
<td>X</td>
</tr>
</tbody>
</table>

* Implementation of Polisi RW implemented as of 1 March 2023

Description:

O1 : The results of measuring the number of crimes in the period January–February 2023 (before the implementation of Polisi RW)

O2 : Crime measurement results for the period March–April 2023 (after the implementation of Polisi RW)

X : Implementation of "Polisi RW"

To test the data on the number of crimes and the resolution of crime reports in the vulnerable period after the implementation of the Polisi RW, namely March–April 2023, the researcher additionally conducted a comparative analysis in this range with the vulnerable period of the previous year, namely March–April 2022. The purpose of evaluating against the previous year is to ensure that the number of crimes and crime report settlements in that period is not identical to the number of crimes and crime report settlements that occurred in that month the previous year. This is the pre-post quasi-experiment chart:
Table 2 quasi-experimental research design pre-post intervention 2 months prior to and following implementation

<table>
<thead>
<tr>
<th>Before Polisi RW Implementation (March-April 2022)</th>
<th>After Polisi RW Implementation (March-April 2023)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of crimes</td>
<td></td>
</tr>
<tr>
<td>O3</td>
<td>X</td>
</tr>
<tr>
<td>* Implementation of Polisi RW implemented as of 1 March 2023</td>
<td></td>
</tr>
</tbody>
</table>

Description:
O4 : The results of the March-April 2022 crime rate measurement (prior to the implementation of Polisi RW).
O5 : Crime measurement results for the period March-April 2023 (after the implementation of Polisi RW).
X : Implementation of "Polisi RW"

This research hypothesis that Polisi RW effectively reduces crime as a form of crime prevention in the Metro Jaya Police Department area. The sample in this study is all crime data (crime reports) in the Resort Police in Metro Jaya Police Department, namely West Jakarta Resort, North Jakarta, East Jakarta, South Jakarta, Kepulauan Seribu, Tangjung Periok, Soekarno Hatta Airport, Depok, Bekasi, Tanggerang, South Tanggerang, and Bekasi district (attached). The data analysis used was a paired sample t-test with an error rate of 5%, and the effect of Polisi RW implementation was measured using Cohen's d (Cohens, 1969).

\[ d = \frac{\bar{X}_t - \bar{X}_c}{S_{pooled}} \times 100\% \]

Description
Cohen’s d = effect size (effect size in per cent)
\( \bar{X}_t \) = mean treatment condition (average after)
\( \bar{X}_c \) = mean control condition (average before)
\( S_{pooled} \) = Standard deviation (standard deviation)

The result of Cohen's measurement is that if the resulting d value is 0.2, then the influence of the variable is considered absent. The effect is considered small if the value is between 0.2 and 0.5. Meanwhile, if the d value is greater than 0.5 to 0.8, then the influence is considered. Meanwhile, if d is greater than 0.8, the influence is considered large.

4. Result
4.1 Difference in the Number of Crime Reports Two Months Before (January-February 2023) and After Implementation (March-April 2023)

Hypothesis testing was conducted using the Paired Sample T-Test. The results of the test of the average difference in crime reports before and after are presented in the following table:

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>thitung</th>
<th>Significance</th>
<th>Description</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime Total Before</td>
<td>73.5714</td>
<td>-2.204</td>
<td>0.046</td>
<td>Sig. &lt; 0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>Crime Total After</td>
<td>94.6429</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the information in the table above, it is found that testing the difference in the average crime report before and after results in a significance value of 0.046. It is known that the significance value (0.046) has an $\sigma$ of 0.05, so there is an effect of the implementation of Polisi RW in reducing the number of crimes in the Metro Jaya Police area. Meanwhile, Cohen's d value is $0.451 < 0.5$, which means the effectiveness is small.

### 4.2 Difference between the crime reports for March-April 2022 and March-April 2023

Hypothesis testing was conducted using the Paired Sample T-Test. The results of the March-April 2022 and March-April 2023 LP mean difference tests are presented in the following table.

**Table 4: T-Test of total crime for the period March–April 2022 and March–April 2023**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>$t_{hitung}$</th>
<th>Significance</th>
<th>Description</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Crime March-April 2023</td>
<td>94.6429</td>
<td>3.566</td>
<td>0.003</td>
<td>Sig. &lt; 0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>Total Crime March-April 2022</td>
<td>47.5714</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the information in the table above, it is found that testing the difference in the average LP between March and April 2022 and March and April 2023 results in a significance value of 0.003. It is known that the significance value (0.003) has an $\sigma$ of 0.05, so H0 is rejected and H1 is accepted. Therefore, the March–April 2022 and March–April 2023 LPs are significantly different. Judging from the average, LP March–April 2023 (94.6429) is higher than LP March–April 2022 (47.5714). Meanwhile, Cohen's d was found to be 1.157. The resulting d value is $1.157 > 0.8$, so the effect is large.

### 5. Discussion

Establishing the Polisi RW by Metro Jaya Police Department is a step towards a personal approach and emphasizes problem-solving rather than just sticking to rigid legal formalities. The concept of Polisi RW is derived from the primary function of the police, which is ideal for preventing crime clearly and tangibly. In addition, it also requires a complex constructive interaction of all resources and community elements in the area without exception, of course, in addition to the already solid police institution. The Polisi RW formed by Metro Jaya provides a significant change in reducing the crime rate; it can be seen from the research results that the t-test is 0.046 with an alpha of 0.05. The significant relationship is also shown by Cohen's d value of 0.451, which means the effectiveness is small. Therefore, it is clear that there is an effect of the formation of the Polisi RW, which is, of course, the function of its formation, namely, to prevent crime in the Metro Jaya Police Department area. The function of the Polisi RW itself is a form of community policing, which is the best approach to aligning police services with the principles of good governance in the security sector, and the function of the Polisi RW is not only as a form of community policing but also as hotspot policing and predictive policing.

These results are supported by Kocak Deniz's research (2018), which says the stated aim of the community policing approach is to reduce the fear of crime in society and to overcome mutual distrust between the police and the communities they serve by promoting citizen police partnerships. Community policing itself has become a policy and strategy. The context of community policing reflects Indonesian Police efforts to make the community its partner to prevent crime and solve various social problems that occur in the community, with
the ultimate goal of realizing the implementation of self-security in the community (Humberto, 2012).

In addition to analyzing the crime data for the January–February 2023 period compared with the data after its implementation, namely the March–April 2023 period, researchers also compared the March–April 2022 period with March–April 2023 as comparative data. The t-test results produce a significant value of 0.003. It is known that the significance value (0.003) has an alpha of 0.05, so H0 is rejected and H1 is accepted. Therefore, it can be stated that the number of crimes in March–April 2022 and March–April 2023 is significantly different. Judging from the mean, the March-April 2023 LP (94.6429) is higher than the March-April 2022 LP (47.5714). Meanwhile, Cohen's d was found to be 1.157. The resulting d value is 1.157 > 0.8, so the effect is large.

In America, most police departments claim to practice community-oriented policing (COP). Similarly, various statements have the same goal of building partnerships between police and communities, maintaining order and quality of life, and solving problems that contribute to crime and the fear of crime (Gau & Paul, 2019). In addition, the role of the Polisi RW is a manifestation of problem-oriented policing, which, by bringing police services closer to the community, is expected to establish a close relationship between the police and the community. One form of activity is Sambang, which involves visiting police partners and other stakeholders. In other words, these policing activities aim to prevent crime (Margaret & Marito, 2018).

In addition, Polisi RW, as a form of Hotspot policing, aims to prevent crime by focusing attention on deviant places. Focusing limited resources on a small number of high-activity crime hotspots. It aims to assess the effects of crime prevention interventions by focusing on crime hotspots (Braga et al, 2019). The boomerang effect is a sufficiently strong evidential goal to demonstrate that hotspot policing is an effective crime prevention strategy. As Ariel, Barak, and Henry Partridge's study found, it illustrates the role of bounded rationality in everyday policing, with crime reduction based on increased fear and risk perception. However, hotspot policing can also backfire when offenders systematically and accurately predict the temporal and spatial patterns of long-term targeting in a single location (Ariel & Patridge, 2017).

Furthermore, looking at experiments conducted by Weisburd David, Anthony A. Braga, Elizabeth R. Groff, and Alese Wooditch revealed that hotspot policing is an effective strategy for crime prevention. An agent-based model was used to estimate the area-wide impact of hotspot policing on street robberies by testing two hotspot policing deployments and comparing them with two control conditions, one with a constant random patrol model and the other without police officers. The experiment revealed statistically significant effects for hotspot policing outside the random patrol model and the no-police landscape (Weisburd et al, 2017).

As a form of hotspot policing, the Polisi RW were made to focus on the neighborhood area where each of them served. And monitoring their area, in this case, one RW or a certain area, which is tasked with establishing an approach with the community to filter all information, become a bridge between the Police Station and the community, and become the eyes and ears of the leadership who are tasked with providing an overview of the situation in the field (Mustolih, 2019).

In addition, Polisi RW is not only a form of community policing and hotspot policing but also a form of predictive policing, where Polisi RW's mobile application "ada polisi" is the first step in the form of predictive policing. This can also be juxtaposed with several predictive
policing mobile-based applications created in several countries. The applications include Predpol, Precobs (Egbert & Leese, 2021); Harm Assessment Risk Tool/ HART (McDaniel & Pease, 2021); Offender Assessment System/ OASys (McDaniel & Pease, 2021); Crime Anticipation System/ CAS (Hardyns & Rummens, 2018); Hunchlab (Hardyns & Rummens, 2018). Predpol, precobs, CAS, Hunchlab map crimes that have occurred in a particular location, which are then used to predict the likelihood of recurrent crime in the area in the form of a map (Hardyns & Rummens, 2018). HART is a machine learning algorithm that assigns an individual a 'risk score' corresponding to predicting an offender's likelihood of reoffending. On the other hand, the Offender Assessment System (OASys) is a risk assessment tool to measure an individual's likelihood of re-offending and develop an individual risk management plan ((McDaniel & Pease, 2021).

The goal of predictive policing is to forecast where and when crimes will occur in the future. The idea has captured the imagination of law enforcement agencies around the world. Many agencies are purchasing software to reduce crime by mapping possible future crime locations to guide the deployment of police resources (Moses & Chan, 2018). Specifically, this analysis identifies how predictive policing realizes certain criminal futures and makes them amenable to crime prevention measures. The police target future criminals to make prevention more effective and efficient (Leese, 2022).

6. Limitation
This measurement was only conducted for two months after the implementation of Polisi RW, which, according to some literature, suggests that follow-up studies in implementation research should be carried out for at least six months (Powell & Janssen, 2012; Ariel & Partridge, 2017).

7. Conclusion
The implementation of Polisi RW can prevent crime, as evidenced by the calculation of the period before and after the implementation of Polisi RW in Metro Jaya Police Department. Based on this, the Polisi RW can implement it in other areas besides Metro Jaya Police Department.

References


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