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IDENTIFICATION OF SOCIAL AND HEALTH POLICIES ON INFANT MORTALITY RATE IN KLATEN REGENCY

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ABSTRACT. Policy is a set of actions embodied as a product of laws to improve social interactions. Social and health policies are formulated to address public issues; for example, health issues upon which health policies are created to solve the respective issues. Infant mortality (IM) is one of the indicators used to assess the health prevalence and socioeconomic welfare of the community. Klaten, among other areas, suffers from high IM, so it is imperative to investigate this issue in Klaten Regency. The present study focuses on IM in Klaten Regency in 2020 and uses the Cluster Study to identify areas in Klaten Regency that need better attention and advocacy related to IM. This study aims to cluster the subdistricts in Klaten Regency based on IM variables, the number of pre-prosperous families, and the number of health facilities. In addition, this study investigates the obstacles to implementing the programs to reduce IM in Klaten Regencies. The results showed an unsatisfactory finding in all three variables. The Government Policy of Klaten Regency to reduce IM has been embodied in several flagship programs, such as SUKETI. However, the implementation of SUKETI Programs was not found in any publication, so it is considered not working. However, inequitable implementation of the programs due to the COVID-19 pandemic and other barriers has resulted in suboptimal, partial efforts to reduce IM.

Keywords: clustering; IMR; Klaten; social issues

IDENTIFIKASI KEBIJAKAN SOSIAL DAN KESEHATAN TERHADAP ANGKA KEMATIAN BAYI DI KABUPATEN KLATEN

ABSTRAK. Kebijakan adalah serangkaian tindakan yang diwujudkan sebagai produk hukum untuk meningkatkan interaksi sosial. Kebijakan sosial dan kesehatan dirumuskan untuk mengatasi masalah-masalah publik, misalnya masalah kesehatan, yang kemudian dibuat kebijakan kesehatan untuk menyelesaikan masalah tersebut. Angka Kematian Bayi merupakan salah satu indikator untuk menilai prevalensi kesehatan dan kesejahteraan sosial ekonomi masyarakat. Klaten merupakan salah satu daerah yang memiliki Angka Kematian Bayi yang tinggi, sehingga sangat penting untuk meneliti masalah ini di Kabupaten Klaten. Penelitian ini berfokus pada Angka Kematian Bayi di Kabupaten Klaten pada tahun 2020 dan menggunakan Studi Cluster untuk mengidentifikasi daerah-daerah di Kabupaten Klaten yang membutuhkan perhatian dan advokasi yang lebih baik terkait Angka Kematian Bayi. Studi ini bertujuan untuk mengelompokkan kecamatan-kecamatan di Kabupaten Klaten berdasarkan variabel Angka Kematian Bayi, jumlah keluarga pra-sejahtera, dan jumlah fasilitas kesehatan. Selain itu, penelitian ini juga menyelidiki hambatan dalam melaksanakan program-program untuk mengurangi Angka Kematian Bayi di Kabupaten Klaten. Hasil penelitian menunjukkan temuan yang kurang memuaskan pada ketiga variabel tersebut. Kebijakan Pemerintah Kabupaten Klaten untuk menurunkan angka kematian bayi telah diwujudkan dalam beberapa program unggulan, seperti SUKETI. Namun, implementasi Program SUKETI tidak ditemukan dalam publikasi manapun, sehingga dianggap tidak berjalan. Namun, implementasi program yang tidak merata karena pandemi COVID-19 dan hambatan lainnya mengakibatkan upaya penurunan Angka Kematian Bayi secara parsial menjadi tidak optimal.

Kata kunci: AKB; klasterisasi; Klaten; masalah sosial

INTRODUCTION

Based on the International Conference on Population and Development (ICPD) - a document drafted in 1994 and approved by 179 countries - civil problems experienced by most of the world's population must be addressed immediately. Among all population problems, mortality is an interesting topic because it has always been the target of human development in many countries (Alfana, 2015). Mortality, along with natality and mobility, is a component in the demography process that affects the population structure (BPS, 2022). According to Utomo (1985) in Ilpaji and Nurwati (2020), mortality refers to the permanent loss of all signs of life that can occur anytime after a live birth. Mortality can also occur among infants/toddlers, known as Infant Mortality (IM). Infant mortality rate, or IMR, is one of the indicators of health prevalence and socioeconomic welfare in society (BPS, 2021). Infant mortality has shown a downward trend yearly (see Figure 1).

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Figure 1. Infant Mortality Trend in Indonesia
Source: Ministry of Health Republic Indonesia (2019)

Previous studies showed that the most prevalent cause of infant mortality in Klaten Regency in 2020 paling was low birth weight (BBLR). At the Central Government Hospital RSUP dr. Soeradji Tirtonegoro Klaten, there were 313 cases of low birth weight in 2021 (Ananda, 2023). Other studies show that respiratory tract infection (RTI) is one of many causes of infant mortality. Also, a relationship between nutrition status and RTI incidence among 7-12-month-old babies in Klaten Regency has been reported (Setianingsih, 2021). The Klaten Regency Government is trying to reduce the infant mortality rate by issuing Klaten Regency Regional Regulation Number 8 of 2021 concerning the Regional Government's Medium Term Development Plan for 2021-2026, which contains various strategies for reducing poverty and improving health. However, based on these findings, it is essential to cluster the mortality rate in each area of Klaten Regency to identify which area has the highest infant mortality rate. Cluster analyses are unsupervised machine-learning algorithms that aim to delineate subgroups in datasets characterized by discrete differences (Dalmaijer et al., 2022). The authors are intrigued to know which area has the most prevalent IM case in Klaten Regency by clustering the subdistricts based on health and social factors. Then, this study seeks to understand the barriers to implementing the government policy of Klaten Regency to reduce the IM rate.

METHOD

A mixed method was utilized in this study. It started with analyzing the secondary data obtained from the documents entitled Klaten dalam Angka Tahun 2021 (Klaten in Figures in 2021) published by the Statistic Bureau (BPS) of Klaten Regency. The analyzed data included the infant mortality rate, the number of pre-prosperous families (social factor), and the number of health facilities (health factor). The Cluster Analysis was conducted using SPSS. Then, a qualitative approach was conducted for further analysis of the policy and programs for reducing IM in Klaten Regency based on the quantitative analysis results.

Research Method

The initial stage of cluster analysis is problem formulation which defines the variables engaged as the basis of clustering. Then, a proper length of distance must be selected because, according to BPS (2022), distance determines similarities or differences of objects that will be clustered (BPS, 2022). Then, a cluster was formed using the available cluster method. Selecting the cluster method must be done accordingly to solve the problems so that the members of the clusters are relatively homogenous.

The final results of the analysis were the cluster members of each individual. Clustering was intended to group individuals with as little diversity as possible, even less than inter-cluster diversity. The group or cluster was formed according to criteria to select all members within proximity. Different or distant individuals would be included in different clusters.

Clustering also aimed to group objects with similar characteristics into one cluster, so it took several parameters to assess how similar or different those objects were. The most common approach is by measuring similarities expressed in the form of distance between pairs of objects. It means, the higher the similarity index or distance between two objects, the bigger the differences between them, so it is unlikely that those objects are grouped into one cluster.

The steps conducted in the cluster are as follows:

1. The collected samples must truly represent the population.
2. Population is a generalized area consisting of objects/subjects bearing certain qualities and characteristics determined by the researchers to investigate and from which conclusions are drawn. The sample is part of the number and characteristics of the population, so representative samples are obtained using particular sampling techniques (Garaika & Darmanah, 2019).

3. This study sampled the areas of Soloraya, which consist of Surakarta City and Karanganyar District, Sragen District, Wonogiri District, Klaten Regency, Sukoharjo Districts, and Boyolali District. Of these seven Cities/ Districts, Klaten has recorded the highest infant mortality cases.

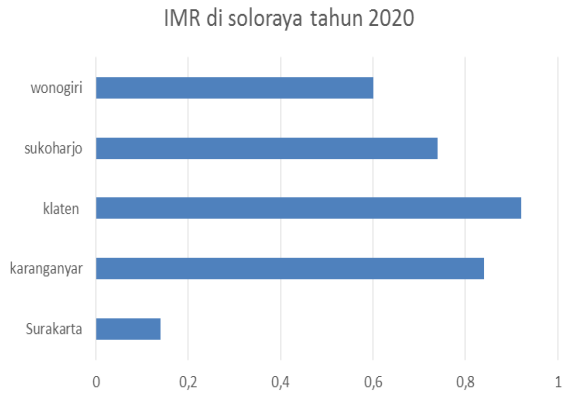


Figure 2. IM Rate of Soloraya in 2020

Accordingly, the researchers were motivated to study IM in Klaten Regency and identify the areas with the highest IM rate based on health and social factors.

Multicollinearity Test

Multicollinearity is the possible correlation between objects. It tests whether a correlation will affect the magnitude of multicollinearity, for example, above 0.5. If multicollinearity occurs, it is advisable to eliminate one of the two variables that have a relatively high enough correlation (Santoso, 2014).

According to Damodar (1998), the symptoms of multicollinearity can be diagnosed in many ways, including:

a. Calculate a simple correlation coefficient that reaches 0.8.
b. Use VIF tolerance value.
c. Use the TOL value, which is a measure of tolerance for detecting multicollinearity.
d. Use Eigenvalues.

Data Transformation

Data transformation is an effort that primarily aims to change the measurement scale of the original data into another form so that the data can meet the underlying assumptions of the analysis of variance. According to Tukey (1977), the book Exploratory Data Analysis explains the most commonly used data transformation functions which depend on the number of digit units in the data.

Outlier Data Test

According to Barnett and Lewis (1994), outliers are data (observations) that are inconsistent with other data or do not follow a general pattern of general data. In an observation, one or more outliers may disrupt the statistical analysis.

The Cluster Analysis

Cluster analysis involves clustering objects or cases into smaller groups, each group containing objects similar to one another (Supranto, 2004). There are two types of cluster analysis: hierarchical and non-hierarchical.

RESULTS AND DISCUSSION

This study aims to classify subdistricts in Klaten Regency based on IM, the number of pre-prosperous families as an indicator of regional poverty, and the number of health facilities. It also seeks to understand the obstacles the Klaten Regency Government faces in implementing IM reduction policy.

According to BPS, Infant Mortality (IM) is the number of deaths of infants under one year old per 1,000 live births in a given year. The use of IM to reflect the state of public health.

The poverty indicator proposed by the BKKBN (2003) applies to pre-prosperous families whose members are unable to eat twice or more a day, do not have different clothes to wear at home, work, school, and travel, and whose house floor is earthen mainly.

Based on Article 4 of the Government Regulation of the Republic of Indonesia Number 47 of 2016 on Health Service Facilities, Chapter II (Availability of Health Service Facilities) mentions that the Types of Health Service Facilities consist of venues for independent practice for Health Workers, Health Centers, Clinics, Hospitals, Pharmacies, Regional Transfusion Units, Laboratories Health, Optics, Medical Service Facilities for Legal Purposes and Traditional Health Service Facilities.

The variables for descriptive analysis in this study were as follows:

Table 1. Descriptive Statistics

Descriptive Statistic				
	N	Minimum	Maximum	Value
IMR	26	0	1.83	0,90

Number of families	26	369	5643	2027.81
Health facilities	26	9	23	12.69

Source: Outcome of SPSS version 23

Table 1 shows that the highest IM ratio in Klaten in 2020 is 1.83, contributed by Juwiring Subdistrict. Bayat has the most pre-prosperous families (5,643 households) while Kebonarum and Karangnongko Subdistricts have the fewest health facilities.

The authors gathered the criteria threshold for Klaten region based on the descriptive data. An area is considered to have a high IM rate if it is more than 0.8981; any area with smaller figures means a low IM. Similarly, the number of pre-prosperous families has a median limit of 2027. After 2027, the will have many pre-prosperous families and will be prioritized. At last, the average number of health facilities is 12. Regions with more than 12 health facilities are considered as having a good health sector. Any areas with fewer than 12 health facilities will be prioritized because their health sector is projected to handle more IM.

The Cluster Analysis with the Hierarchical Method

Cluster analysis aims to categorize objects with similar characteristics. According to Santoso (2002), there is high homogeneity or similarities among members in one cluster and high heterogeneity or differences between one cluster and another. As mentioned before, there are two cluster methods: hierarchical and non-hierarchical methods.

This research used the hierarchical cluster method, where each object is treated as a separate cluster and then the two closest objects or clusters are combined to form a smaller cluster (Wichern & Dean, 1992). The hierarchical cluster analysis was performed using an Agglomerative Technique. In the Agglomerative method, each object of observation is initially a cluster which consists of the objects of observation as the cluster members (Hair et al., 1998). In the next stage, two objects or clusters of observations with the same characteristics are combined, thus forming a new cluster. An essential characteristic of this method is that the initial clustering results are always nested in the results of the later stages of clustering, such as a tree.

The general algorithm of Agglomerative Hierarchy to group N objects is as follows (Rachmatin, 2012):

1. It starts with N cluster, where each cluster contains a single element and a symmetrical matrix, D = $\{d_{jl}\}$ is Euclidean distance with the formula:

$$d_{jl} = \{(x_l - x_j)`(x_l - x_j)\}^{\frac{1}{2}}$$

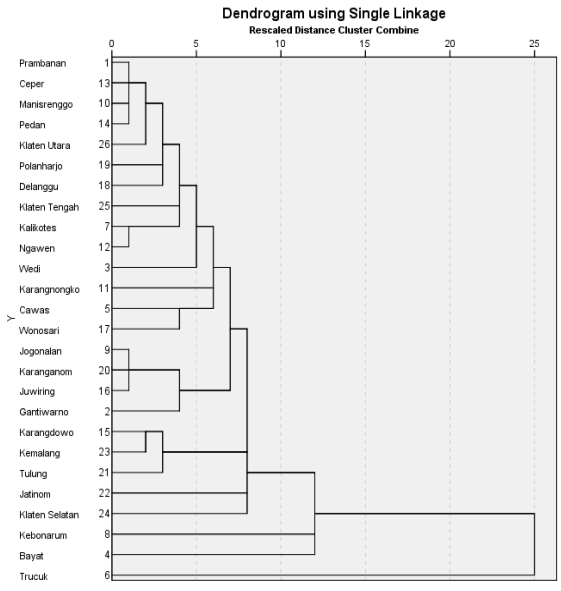
$$d_{jl} = \sqrt{\sum_{k=1}^{i} (x_{lk} - x_{jk})^2}$$

$i = 1, 2, \ldots, p$ atau $l = 1, 2, \ldots, n$

2. Determine the distance of the closest pair of clusters. For example, the distance between clusters U and V is dUV.
3. Combine clusters U and V, mark the new cluster with (UV).

   Recalculate the new distance matrix with the following methods:
   a. Erase the line and column respective to clusters U and V
   a. Add a line and a column that gives a space between the cluster (UV) and the others.
4. Repeat Step 2 for (N-1) times until all objects are in one cluster. From the existing data, the authors wanted to know the clustering subdistricts of Klaten based on IM, the number of pre-prosperous families, and health facilities. The following dendrogram illustrates the clustering.

Table 2. Dendrogram Single Linkage



Source: Outcome of SPSS version 23

From the dendrogram using a distance of 10, the authors can see eight clusters formed from 26 subdistricts in Klaten as follows:

Cluster 1 has a low IM level, a small number of pre-prosperous families and a sufficient number of health facilities. This means that areas in cluster 1 have low levels of IM and are not the highest contributor to the IM rate in Klaten Regency. Cluster 1 consists of Prambanan Subdistrict, Ceper Subdistrict, Manisrenggo Subdistrict, Pedan Subdistrict, North Klaten Subdistrict, Polanharjo Subdistrict, Delanggu Sub District, Central Klaten Subdistrict, Kalikotes Subdistrict, Ngawen Subdistrict, Wedi Subdistrict, Karangnongko Subdistrict, Cawas Subdistrict and Wonosari Subdistrict.

Cluster 2 consists of subdistricts with high IM rates, fewer pre-prosperous families, and adequate health facilities. Cluster 2 is influenced by factors other than the number of underprivileged families and health facilities. However, suspicions may arise regarding the mindset and lifestyle of the people living in the subdistricts in Cluster 2. This cluster comprises Jogonalan Subdistrict, Karanganom Subdistrict, Juwiring Subdistrict and Changewarno Subdistrict.

Cluster 3 consists of subdistricts with low IM, a moderate number of pre-prosperous families, and sufficient health facilities. This means that underprivileged families in all subdistricts in Cluster 3 need special attention. The author assumes that there are still many underprivileged families in this area, so it is crucial to determine whether the villages in Cluster 3 have developed or still need guidance to improve community welfare. This cluster comprises Karangdowo Subdistrict, Kemalang Subdistrict and Tulung Subdistrict.

Cluster 4 consists of subdistricts with average IM, a high number of pre-prosperous families, and average health facilities. This means that underprivileged families in all subdistricts in Cluster 4 need special attention. The author assumes that there are still many underprivileged families in this area, so it is critical to determine whether the villages in Cluster 4 have developed or still need guidance to improve community welfare. This cluster only comprise Jatianom Subdistrict.

Cluster 5 is an area with a high level of IM, a low number of pre-prosperous families, and adequate health facilities. It can be concluded that Cluster 5 has an IMR problem not because of poverty or health service facilitiesbut because of other factors that need further research related to IMR in the South Klaten Regency area. Cluster 5 consists of South Klaten Regency.

Cluster 6 is an area with a high IMR, a small number of pre-prosperous families, and a low number of health facilities. Areas included in cluster 6 only have 1 health center in 1 subdistrict. So the problem that arises in cluster 6 is high IMR with limited health facilities. This is evidence that health facilities in the Kebonarum area do not support the health of the people of Klaten Regency.

Cluster 7 has a high IMR value, a high number of pre-prosperous families, and even the largest of the other subdistricts, as well as adequate health facilities. The area consisting of Bayat Subdistrict that requires specific handling. The poverty factor in this area is seen from the high number of pre-prosperous families, indicating the cause of the high IMR value. Even though health facilities are adequate, the community's low economic capacity encourages people to seek treatment in cheaper places. Cluster 7 has sufficient health facilities, but the community is unable to access health facilities due to high poverty. This has caused this area to have a high IMR rate.

Cluster 8 has a medium IMR value, a high number of pre-prosperous families, and a large number of health facilities, which consists of Trucuk Subdistrict. This area has problems related to poverty factors that are more prominent than the IMR problem. Even though this area has many health facilities, it still influences the IMR value of the area due to the low economic capacity of the people to access health facilities.

Based on the conditions above, it was discovered that Cluster 6 is a high IM area that lacks health facilities. This can be seen in Kebonarum Subdistrict, which is a member of Cluster 6, which only has one community health center (Puskesmas) while there are seven villages/subdistricts. Cluster 7 is an area that has a high level of IM with a high number of pre-prosperous families. So, the cause of the high IM in Cluster 6 is due to lack of health facilities, while the high IM in Cluster 7 is due to the low economic conditions of the community.

The Current Conditions of High IM Clusters

Kebonarum Subdistrict

Kebonarum Subdistrict is a subdistricts in Klaten Regency that is located in the southern part and directly adjacent to South Klaten Regency. Kebonarum occupies 6.9 km^2 or 9.67% of Klaten Regency. According to BPS Klaten (2022), the population of the Kebonarum Subdistrict in 2021 was 19,835 people, consisting of 9,770 men and 10,065 women, dominated by the productive age group of 35-39 years. Dominated by productive women, Kebonarum Subdistrict will reap benefits if the current health facilities are equipped with services for maternal care provided by the local government of Kebonarum. The high IM rate is assumed due to the distance from the people's houses to the facilities or the limited number of health facilities in the area.

Based on Kebonarum in *Angka 2022*, health facilities in 2020 only consisted of one polyclinic, one public health center (Puskesmas) without inpatient services, and three pharmacies, while in 2021 the polyclinic was down to zero. This shows that Kebonarum area still lacks health facilities, no general hospital nor Maternity Hospital. Therefore, high IM in Kebonarum Region was due to limited health facilities.

Bayat Subdistrict

Bayat Subdistrict is part of Klaten Regency, which is located ± 12 km southeast of Klaten Regency. Based on the results of the population regression in 2021, Bayat had 63,541 people, consisting of 31,821 males and 31,720 females (BPS, 2022).

The problems that arise in the Bayat Subdistrict are due to the high number of pre-prosperous families. In 2003, poverty was evident in Bayat where only 55% of all housing was permanent, and the rest 45% were semi-permanent and non-permanent houses. The authors assumed that the high rate of IM in Bayat was due to the relatively poor population. Also, the far distance from people's residence to health facilities in the city center can be a reason for low access to health facilities available in the sub-district.

The health facilities available in Bayat Subdistrict are the Public Health Center or *Puskesmas*, Polyclinic, Pharmacies, and Inpatient Health Center Policy Development. It may seem a lot, but after looking closer, the authors found that six Puskesmas were without Inpatient Care, and there were only 4 Polyclinics, one Pharmacy, and one Puskesmas with Inpatient Care. This condition indicates that many residents in Bayat fall into the category of pre-prosperous families because the available health facilities only serve minor illnesses. Also, no delivery service was provided by these health facilities, the IM rate in the Bayat area remains high despite the numerous health facilities available.

The Current Policies in Klaten Regency

According to Furtado (2019), policy is a series of actions to improve social life and economic processes. Social policy is one type of public policy. Bessant (2006) stated that policies contain the government's decisions to act upon public issues by addressing social issues or meeting the needs of the general public. Health problems require health policies that can solve social issues. Supriyanto (2015) proposed this relationship that policy is a product of the political system, and the health system is a product of the political system. The health policies stipulated by the government in 2021, in addition to COVID-19 mitigation, are the National Health Insurance (JKN) and efforts to reduce Maternal Mortality (AKI) and Infant Mortality (IM), stunting, control over infectious diseases and not infectious diseases, and the national health system.

The Regional Government of Klaten Regency has attempted to suppress and reduce Infant Mortality (IM) by issuing multiple policies. In the 2016-2021 period, the Regional Regulation of Klaten Regency Number 5 of 2016 on the Medium Term Development Plan for Klaten Regency in 2016-2021 (Klaten Regency Regional Regulation Number 5 of 2016) contains the vision for the development of the Klaten Regency, focusing on activities or programs to accelerate poverty alleviation and reduce unemployment, and improve the quality of education and health services.

The Regional Government of Klaten Regency prioritizes development programs as follows:

Figure 3. Priority and Action Plan for 2016 - 2021

The Government of Klaten Regency carries out its poverty reduction plan by adhering to the strategic plan stipulated in President Regulation Number 15 of 2010 on Acceleration of Poverty Reduction. This Decree stipulates that meeting basic needs must be the priority before conducting the following stages (numbers 2-4). The corresponding four stages are as follows:

1. Reduce expenses for liabilities (social safety net).
    a. Direct aid in the form of clothing, food, housing, education, health care, and clean water;
    b. The aid must be in the form of a grant/ social assistance.
2. Increase the ability and income of the poor.
    a. Provide entrepreneurship skills training for beginners;
    b. Provide initial capital assistance.
3. Develop and guarantee the sustainability of micro and small businesses.
    a. Provide continuous empowerment and assistance;
    b. Ensure business stabilization and marketing facilitation.
4. Foster synergy of policies and programs for poverty alleviation.
    a. Facilitation of entrepreneurship development;
    b. Certification/HAKI;
    c. Facilitation of subsidized medical devices.

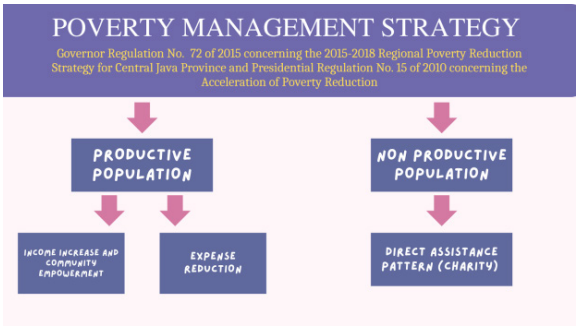


Figure 4. Strategy of Poverty Alleviation by the Government of Klaten Regency in 2016 – 2021

In 2016-2021, the Government of Klaten Regency implemented poverty alleviation programs and improvement of health services based on the Presidential Regulation (Perpres) and the Governor Regulation (Pergub) of Central Java, namely the Public Health Insurance Program (BPJS, Jamkesmas, Jamkesda, Etc.), Family Health Program (Jampersal), Diversification Program and Improvement of Public Food Security, Family Hope Program (cash assistance to RTSM or Very Poor Households) for family health and education costs, PKH Assistance (Family Hope Program), Social Welfare Institutional Empowerment Program, and others.

The Government of Klaten Regency in 2021 issued regulations, including Klaten Regency Regional Regulation Number 8 of 2021 on Regional Governments for 2021-2026 that focused on alleviating poverty and improving health facilities that were severely affected by the COVID-19 pandemic as outlined in the Medium-Term Development Plan. The COVID-19 pandemic outbreak has increased the poverty rate in Klaten Regency and required more health facilities to improve public health in Klaten Regency. Post-COVID-19 recovery emphasizes the developing and improving health facilities and poverty alleviation as the most-affected sectors by the pandemic in Klaten Regency.

Poverty and Unemployment Alleviation Programs

The Klaten Regency Program based on the Klaten Regency Regional Regulation Number 8 of 2021 to address poverty and unemployment includes expanding employment opportunities in the following areas:

1. Klaten Subur

Subur (fertile) is the abbreviation of Low-Interest Subsidy, meaning that the government provides easy access to business capital for MSMEs by providing subsidies of an interest rate for People's Business Credit (KUR) of 80% of the bank interest appointed by the Klaten Regency Government.

2. Klaten Cetar

Cetar (bright) stands for Smart and Skilled, which means increasing the capacity of the workforce in Klaten Regency in terms of soft skills and hard skills, introducing competencies that match the potential job market, and having opportunities to create jobs/entrepreneurship.

3. Klaten Tangkis

Tangkis (dodge) is an acronym for Overcoming Poverty by Addressing All Regional Officials, which is supported by the participation of the business sectors and the community. Poverty reduction is carried out through programs that aim at increasing access to decent work, increasing income, reducing expenses, and providing social protection for people experiencing poverty.

Health Improvement Programs

Health improvement strategies carried out by the Klaten Regency Government include:

1. Klaten Waras

Waras (sane; healthy) means providing health services for the people of Klaten Regency by involving cross-programs and cross-sectors to improve maternal and child health, developing health services, eliminating infectious diseases, and improving community environmental health, such as the Waskita Program (Klaten Mandatory Joint Supervision for the Health of Mothers and Baby and Toddlers) and the Bamboo Flute Program (Stunting Attack and Hunt, Equipping Children to Become Superior Seeds), and others.

In the Klaten Waras program, there is an innovation related to pregnant women: SUKETI (Integrated Maternal Pregnancy Screening). This innovation is contained in the 2023 RKPD (Regional Government Work Plan) for Klaten Regency. It is an Integrated Pregnancy Examination that includes a pregnancy examination by a midwife, laboratory examination, doctor's examination, nutritionist consultation, dentist examination and ultrasound examination.

In Integrated Pregnancy Examinations, Health workers must ensure that the pregnancy is going well, detect early problems and illnesses experienced by pregnant women, and carry out strong interventions so that pregnant women are ready to undergo a safe delivery.

2. Individual Health Effort Fulfillment Program and Community Health Efforts

This program is directed at supporting the priority program of the Klaten Regent, namely *Klaten Waras*, which provides health services for the community by involving cross-programs and cross-sectors in the context of improving maternal and child health, developing health services, eradicating infectious diseases, and improving community environmental health, such as Waskita (Klaten Mandatory Joint Supervision for the Health of Mothers, Infants and Toddlers) and the Bamboo Flute Program (Track down and Strike Stunting, Prepare Children to Be Superior Generation), and others. The success indicators of this program include the percentage of pregnant women receiving maternal health services, the percentage of mothers receiving delivery services, and the percentage of newborns receiving newborn health services. This program aims to reduce the high cases of infant and toddler mortality, also known as infant mortality (IM) (Damodar, 1978). Meanwhile, the Kulon Progo District Health Service created an innovation entitled BumilKU as a means of monitoring pregnant women, which is outlined in the Kulon Progo Regent's Regulation Number 87 of 2013, although the use of the application does not directly reduce the maternal mortality rate, it can help monitor the condition of pregnant women in Kulon Progo (Kurniawan & Atmojo, 2019).

Based on the programs noted above, the Regional Government of Klaten Regency has conducted multiple efforts to reduce the IM rate, although it remains sub-optimal and needs to be more comprehensive. It is because Klaten is one of the regions with an extreme level of poverty and inadequate health facilities. Most subdistricts in Klaten have low and shallow welfare indicators, and only a few have adequate health facilities. This condition remains challenging for The Government of Klaten Regency to improve welfare and health facilities with a limited budget (Darmanah, 2019). In addition to imbalanced program implementation in several subdistricts, this program is not equitably distributed and comprehensive (Gujarati, 1998). There are no updates or publications related to SUKETI innovation that researchers can find, so it can be concluded that in 2023 SUKETI innovation was considered not working. This affects the IM rate in Klaten Regency, although not directly because monitoring women's pregnancy conditions can prevent infant deaths. The provision of direct aid and assistance that needed to be on target and the lack of community participation in actualizing the programs also contributed to the worsened conditions in Klaten Regency.

CONCLUSION

Based on the results above, 26 subdistricts in Klaten Regency are grouped into eight clusters based on three variables: infant mortality, pre-prosperous families, and healthcare facilities. Cluster 6 and Cluster 7 require specific handling since both have high IM which may have resulted from the high number of underprivileged families (Bayat Subdistrict) or lack of health services (Kebonarum Subdistrict). To overcome these problems, The Government of Klaten Regency

initiates innovations and poverty alleviation programs every year. This year, the programs include Community Health Insurance Programs (BPJS, Jamkesmas, Jamkesda, and others), Family Health Program (Jampersal), Community Food Diversification and Improved Security Programs, Family Hope Program (cash assistance to RTSM (Very Poor Household) for family health and education costs, PKH Companions (Family Hope Program), Social Welfare Institutional Empowerment Program, and others. In addition, Klaten Regency initiated programs, such as Klaten Subur, Klaten Cetar and Klaten Tangkis. Of the several programs and innovations above, SUKETI is an innovation that has direct contact with pregnant women, but there are no publications related to this innovation during 2023. Even so, this innovation was suitable for monitoring the health of pregnant women so they can be well maintained and cared for until the baby is born.

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