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Trends Analysis Scope of Fe-3 Tablet Administration and ANC K4 Activities towards Pregnancy Complications in Surabaya in 2019

Analisis Kecenderungan Cakupan Pemberian Tablet Fe-3 dan Cakupan ANC K4 terhadap Kejadian Komplikasi Kehamilan di Surabaya Tahun 2019

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ABSTRACT

Background: Pregnancy complications can occur to the mother and Fetus during pregnancy that can cause illness and even death. The risk factors are non-adherent consumption of iron tablets and irregular Antenatal Care services. Efforts to reduce complications are by providing information about the risk factors of pregnancy and the patient's location for interventions to the target group.
Objectives: This study aimed to map and analyze pregnancy complications based on the scope of iron tablet administration (Fe-3) and ANC K4 in 2019 in Surabaya
Methods: This research was a descriptive observational study with a population of 31 sub-districts in Surabaya. It used Spearman's correlation test to analyze secondary data from the Surabaya City Health Profile in 2019. Creation of distribution maps using Health Mapper 4.3.
Results: The distribution map of the scope of Fe-3 tablets administration and ANC K4 activities in Surabaya showed that six sub-districts had low coverage and seven had high coverage. The analysis showed that the relationship between Fe-3 tablet coverage and pregnancy complications was very strong (p=0.001; r=0.985) and positive. In addition, coverage between ANC K4 activity and pregnancy complications was associated with a robust correlation (p=0,001; r=0,982) and a positive direction. Cases of complications occurred throughout the Surabaya area.
Conclusions: The scope of Fe-3 tablet administration and ANC K4 activities in 2019 relates to the incidence of pregnancy complications in Surabaya. Most cases of pregnancy complications are in areas with high coverage of iron tablet administration (Fe-3) and ANC K4 activities.

INTRODUCTION

Pregnancy is a condition that is vulnerable to various things and, at times, can cause unwanted events such as pregnancy complications or even death if optimal care is not taken during pregnancy. One of the treatments pregnant women usually carry out is the Antenatal Care (ANC) examination. This activity is a gradual examination of pregnancy to improve the health of pregnant women both physically and mentally so that they can undergo the process of childbirth, childbirth, and preparation for giving milk-mothers (ASI) to babies exclusively until the recovery of reproductive health[1].

World Health Organization(WHO) recommends antenatal care (ANC) examinations at least eight times. The first visit is carried out during the first trimester with a gestational age of around 0-12 weeks, the second and third visits are carried out during the second trimester with a gestational age reaching 20 and 26 weeks, and subsequent visits are carried out during the third trimester where the gestational age has reached 30, 34, 36, and 40 weeks[2]. In contrast to WHO recommendations, the Ministry of Health of the Republic of Indonesia recommends that t Antenatal Care (ANC) be carried out at least four times during the nine months of pregnancy (commonly known as ANC K4, and each is carried out once in the first and second trimesters, followed by examinations in the third trimester)[3]. Over time, the government added the minimum implementation of ANC in 2021 to at least six prenatal checkups during pregnancy. This examination can be done once during the first trimester, twice during the second trimester, and three times during the third trimester[4].

In 2017-2019 in Indonesia, the coverage of ANC K4 implementation increased gradually, namely 87.3% in 2017, 88% in 2018, and 88.5% in 2019[5]. The scope of ANC K4 activities in East Java is almost identical to national data. In 2017 - 2019, the coverage of ANC K4 increased, but in 2020 it decreased from 99.44% in 2019 to 90.94% 2020. The coverage of ANC K4 in the East Java region needs to follow the Minimum Service Standards (SPM), which targets 100%[6]. Based on the Health Profile of the City of Surabaya, the coverage of ANC K4 in Surabaya

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from 2017 - 2019 has increased yearly, 98.55% in 2017, 98.98% in 2018, and 99.67% in 2019[7]. The coverage of ANC K4 in Surabaya City exceeds the national and East Java coverage.

One health care performed on ANC activity, either K1 or K4, is to give Fe or iron tablets. Iron (Fe) tablets are additional supplements beneficial for the body in forming red blood cells and hemoglobin needed by pregnant women. The iron needed for pregnant women is at least 800-1000 mg during pregnancy, whereas the fetus, during the developing process, requires 300 mg of iron. Increasing the hemoglobin period during pregnancy requires 500 mg; another 200 mg replaces fluids that the body8 has excreted. Blood supplement tablets given to pregnant women are at least 90 tablets of Fe-3 during pregnancy. The need for iron for pregnant women at any time will differ during pregnancy. In the first trimester, pregnant women need about 0.8 mg per day, and this significant increase in the second and second trimesters (6.3 mg per day). The increased need for iron is caused by increased blood volume when pregnancy enters the 6th to eighth week. Then a few weeks later, namely the 32nd - 34th week, the need for iron reached its highest peak[9].

The coverage of Fe-3 tablets administration in Indonesia in 2018 was 81.42% and decreased by 17.42% to 64% in 2019, where this achievement was still below Indonesia's Strategic Plan 2019 (98%)[10]. Based on the East Java Province Health Profile, the coverage of Fe-3 administration in 2019 reached 89.8%, and in 2020 the achievement was 88.9%. This figure has reached the target set in the 2020 RPJMN, which is 85%[6]. Coverage in administering Fe-3 tablets in Surabaya reached 95.81% in 2017, 99.96% in 2018, and increased by 0.1% or 99.97% in 2019[7]. Giving Fe tablets aims to minimize the risk of complications which, in the worst case, will cause death in pregnant women.

Deaths in pregnant women due to pregnancy complications often occur are bleeding, sepsis, hypertension, and obstructed labor[11]. Research by Mahendra et al. (2019) states that adherence to ANC activities has a significant relationship with the incidence of pregnancy complications[11]. In 2020, as many as 1,330 pregnant women in Indonesia will die from bleeding, 1,110 pregnant women will die from hypertension, and 230 pregnant women will die due to disorders of the circulatory system[5]. The percentage of maternal mortality in Surabaya in 2017-2019 generally decreased from 79 to 59 per 100.00 live births. Health services for pregnant women can minimize complications that may endanger the health of both the mother and her baby so that when pregnant women run health services, it is possible to reduce maternal and infant mortality. Suppose the health services performed by pregnant women, such as consuming Fe-3 tablets and implementing ANC K4, are carried out optimally. In that case, it is expected to reduce the incidence of complications in pregnant women and reduce maternal mortality. The location of pregnant women who experience pregnancy complications also needs to be known to facilitate intervention in the target group.

Based on these, the research was conducted to map and analyze pregnancy complications based on the coverage of Fe-3 tablet administration and the scope of ANC K4 activities in Surabaya. The distribution map can show the scope of ANC K4 activities and give FE-3 tablets in Surabaya more clearly. The research was expected to benefit the community regarding knowledge and insight into the importance of pregnancy health services and to the government to minimize the incidence of pregnancy complications. In addition, information about the risks that can occur during pregnancy must be provided.

METHODS

This research was a descriptive observational study with a population study design from 31 districts in Surabaya. This quantitative research used secondary data from the 2019 Surabaya City Health Profile. The data consisted of the coverage of Fe-3 tablets administration, the coverage of ANC K4 activities, and data on the incidence of pregnancy complications from each sub-district in Surabaya. The data used comes from the 2019 Surabaya City Health Profile. The analysis used was the Spearman correlation test. This test was used to determine the strength of the relationship between the independent variables consisting of the coverage of Fe-3 tablets and the coverage of ANC K4 and the dependent variable. The incidence of pregnancy complications in Surabaya in 2019[12]: (1) 0.00 - 0.199 indicates a very weak correlation, (2) 0.20 - 0.399 indicates a weak correlation, (3) 0.40 - 0.599 indicates a moderate correlation, (4) 0.60 - 0.799 indicates a strong correlation, (5) 0.80 - 1.00 indicates a solid correlation.

Before testing the data, it is necessary to test for normality using the Kolmogorov Smirnov to determine whether or not the data was usually distributed. The data used was said to be expected if the resulting significant value is > 0.05. Test the correlation and normality of the data using SPSS. In addition, the distribution of coverage of ANC K4 activities and administration of Fe-3 tablets with the incidence of pregnancy complications were presented as a map using Health Mapper version 4.3.

RESULTS AND DISCUSSION

The results of the normality test of the study are illustrated in Table 1 . Table 1 shows that the data used consisted of 3 variables: (1) the range of administration of Fe-3 tablets, (2) ANC K4 activities, and (3) the incidence of pregnancy complications normally distributed because the resulting significant values are > 0.05, respectively.

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Table1. Data normality test results

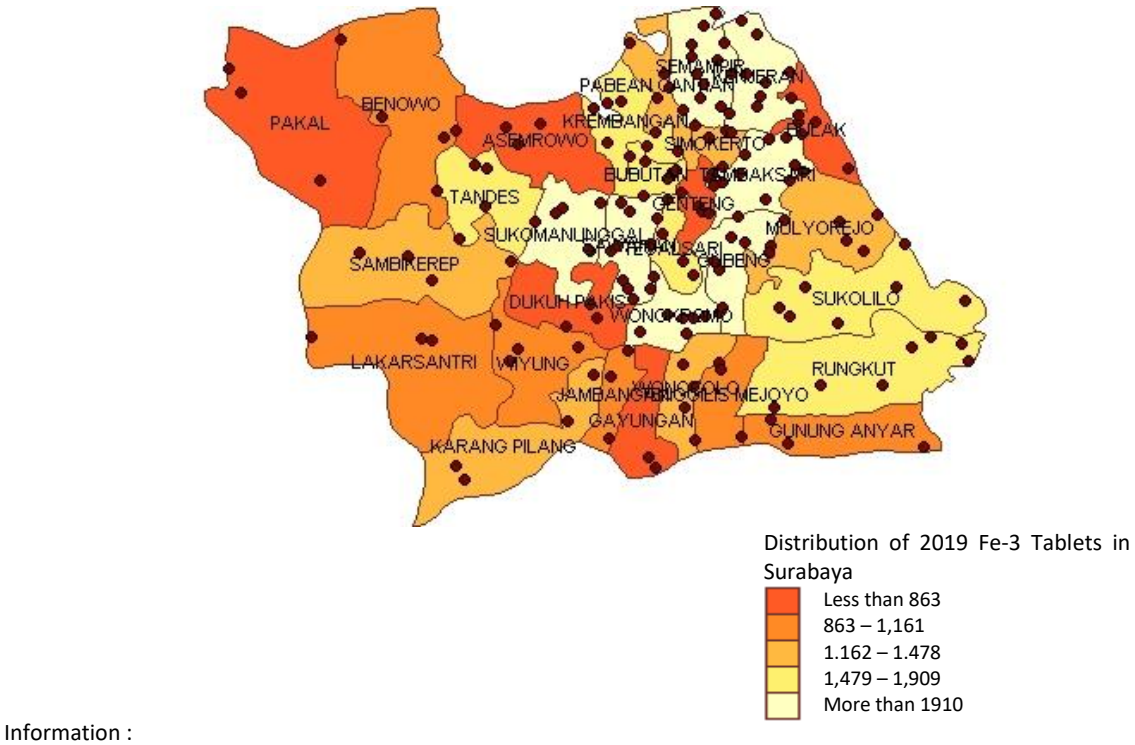
Category	Results	
	N	*asymp. Sig (2-tailed)*
Coverage of Fe-3 Tablet Administration	31	0.301
Scope of Activities ANC K4	31	0.452
Pregnancy Complications	31	0.394

Distribution of Cases of Pregnancy Complications Based on Fe-3 Tablet Administration in Surabaya in 2019

Figure 1 shows the mapping between the coverage of Fe-3 tablet administration and the incidence of pregnancy complications in Surabaya in 2019. It was known that there are six sub-districts with the lowest coverage of Fe-3 tablets marked in orange. The district consisted of Asemrowo District, Bulak District, Dukuh Pakis District, Gayungan District, Genteng District, and Pakal District. In addition, there were seven sub-districts with the highest coverage of Fe-3 tablets distribution marked with yellowish white which the sub-districts consisted of Gubeng District, Kenjeran District, Sawahan District, Semampir District, Tambaksari District, and Wonokromo District and Sukamanunggal District.

Cases of pregnancy complications that occur based on tablet administrations most Fe-3 was found in areas with the highest coverage of Fe-3 tablets, with one dot in the picture representing 50 cases. It was known from the dots scattered on the map that most were in the area around the yellowish-white color, which means that the area had the highest coverage of Fe-3 tablets administration with the most cases of complications. The districts with the most cases of pregnancy complications based on Fe-3 administration included Tambaksari District, with 694 (21.19%) complications cases; Semampir District, 626 (20.99%); Sawahan District, 598 (19.76%); Kenjeran District 578 (19.71%), Wonokromo District 447 (20.62%), and Sukomanunggal District 324 (16.96%).

Distribution of Tablet Administration Fe-3 Coverage with Cases of Pregnancy Complications in 2019



Information :
1 dot = 50 cases

Figure 1. Coverage of Fe-3 tablet administration with pregnancy complications in Surabaya in 2019

Iron (Fe) is beneficial for forming myoglobin, a protein that delivers oxygen to muscles makes enzymes, and produces collagen. Pregnant women need iron (Fe) to increase the nutrition the baby needs in the womb, avoid anemia due to iron deficiency, avoid bleeding during childbirth, and avoid the risk of death for pregnant women due to severe bleeding during pregnancy[8]. Iron deficiency anemia is the most common and can harm the mother and fetus. Generally, a woman does not have enough iron stores to meet the increased needs during the second and third trimesters of pregnancy[13]. Even though iron can be obtained from food, pregnant women

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still need additional Fe tablets during pregnancy. This condition follows recommendations from the Indonesian Ministry of Health that the food consumed by pregnant women can produce as much as 8-10 mg of iron for every 100 calories consumed. During pregnancy, which is approximately 288 days, the foods consumed by pregnant women can produce around 100 mg of iron. The lack of needs required by pregnant women requires that pregnant women continue to consume additional iron, as much as at least 90 tablets or commonly called Fe-3 tablets, during pregnancy[8]. Pregnant women who do not consume Fe-3 tablets according to the schedule given can produce negative impacts such as anemia and chronic energy deficiency (CED), which can cause pregnancy complications or even death.

Milah (2019) showed that anemia in pregnant women was associated with adherence to consuming Fe tablets during pregnancy (p=0.002). Pregnant women who experience anemia can have pregnancy complications or even delivery complications. This condition is because the history of anemia experienced by pregnant women can be a risk factor for postpartum hemorrhage. Severe bleeding can have an impact on loss of consciousness as a result of much blood coming out during labor[14]. Other research also stated that adherence to taking Fe tablets during pregnancy was associated with the incidence of anemia (p=0.010)[15]. Natalia et al. (2017) stated different results where the coverage of Fe tablets did not correlate with the incidence of complications (p-value> 0.05)[16]. Anemia in pregnancy has become a significant factor causing maternal mortality in Nigeria and other developing countries. The leading cause of anemia in pregnancy in that country is due to iron deficiency experienced by pregnant women, where it is known that the prevalence of iron deficiency in pregnant women is still relatively high, around 25% - 45.6%[17]. Severe iron deficiency can worsen anemia, becoming a risk factor for pregnancy complications and even death in pregnant women.

Similarly to anemia and lack of energy, Chronic Energy Deficiency (CED) can have adverse effects on pregnant women and the fetus, where CED will affect the growth and development of the fetus. This CED can also be caused by the disobedience of pregnant women to take blood booster tablets. This finding was in line with a study by Mardiatun et al. (2015), where the level of consumption of Fe tablets and the risk of CED in NTB and Jogjakarta was interconnected[18]. The study also said pregnant women in the Jogjakarta area who did not consume Fe tablets had a 23 times greater risk of developing CED. Despite being influenced by the level of adherence in consuming Fe tablets, CED in pregnant women can also be influenced by a history of nutritional status before pregnancy or a history of chronic diseases. As a result of the lack of consuming Fe tablets coupled with another unfavorable medical history, complications due to CED in pregnant women will worsen.

Distribution of Pregnancy Complication Cases Based on ANC K4 in Surabaya in 2019

The mapping of ANC K4 activities with cases of pregnancy complications in Surabaya in 2019 is shown in Figure 2 below. It was known that the sub-district with the lowest coverage of ANC K4 activities was the same as the coverage of Fe-3 tablets administration where the sub-district consists of six sub-districts including Asemrowo Sub-District, Bulak Sub-District, Dukuh Pakis Sub-District, Gayungan Sub-District, Genteng Sub-District, and Pakal Sub-District which were marked in orange. In contrast with prior findings, Gubeng District, Kenjeran District, Sawahan District, Semampir District, Tambaksari District, Tandes District, and Wonokromo District were still the sub-districts with the highest coverage of ANC K4 activity coverage.

Figure 2 shows areas with pregnancy complications based on the scope of ANC K4 activities. One dot on the map represents 50 cases in that area. Most pregnancy complications in Surabaya were in sub-districts with high coverage of ANC K4 activities. Tambaksari District was the sub-district with the most cases of pregnancy complications, with 694 (22.56%) pregnant women experiencing pregnancy complications, Semampir District with 626 (22.96%), Sawahan District 598 (20.97%), Kenjeran District 578 (20.01%), Wonokromo District 447 (20.53%), and Tandes District 298 (13.27%).

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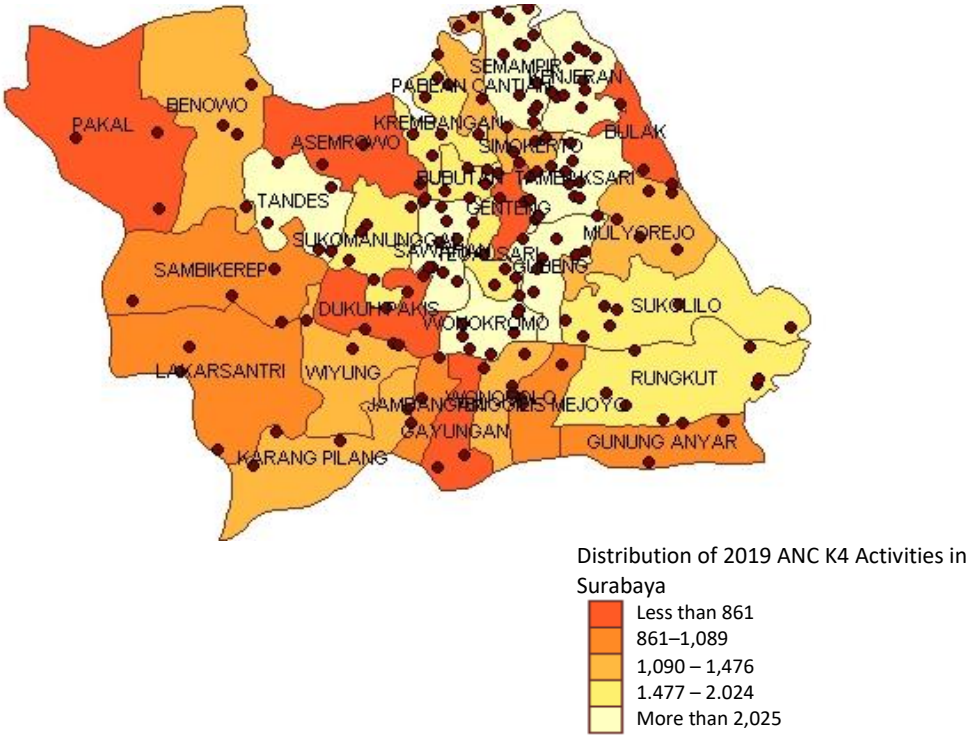
Distribution of ANC K4 Activity Coverage with Pregnancy Complication Cases in 2019 in Surabaya



Information :
1 dot = 50 cases

Figure 2. Coverage of ANC K4 activities with complications of pregnancy in Surabaya in 2019

Cases of pregnancy complications in Surabaya were relatively equitably distributed and can be found in every district. The number of cases in the districts with the lowest coverage of ANC K4 activities was very diverse, such as in Pakal District with 183 (21.43%) cases of pregnancy complications, Dukuh Pakis District with 182 (22.55%), Genteng District with 168 (20.02%), Asemrowo District with 159 (19.95%), Bulak District with 146 (21.66%), and Gayungan District with 134 (22 .11%).

The number of complications cases in the area with the highest coverage was in line with the results of the Spearman correlation calculation between the coverage of ANC K4 activities and the incidence of pregnancy complications in Table 3, which showed positive and unidirectional results so that the higher the coverage in the area in Surabaya, the higher the incidence of complications. Antenatal Care (ANC) activities need to be done to find out earlier about the dangerous signs of pregnancy, which help prevent the severity of pregnancy complications. The lacking ability of a mother to recognize danger signs can be a significant source of complications or even death. Danger signs that most pregnant women do not know about can worsen the condition of pregnancy, such as hyperemesis, vaginal bleeding, and swelling of the extremities and face[19]. Sometimes, a pregnant woman does not undergo an ANC examination due to various reasons such as economic factors, lack of knowledge about the importance of pregnancy health services, and the mother's unwillingness to carry out the examination. Research by Fatkhiyah et al. (2020) shows that the age of pregnant women shows a relationship between age and compliance with ANC examinations. The age range of pregnant women who routinely do ANC examinations is 20-35 years, a healthy reproductive age[20]. In contrast to other studies, the age of pregnant women with adherence to carrying out Antenatal Care (ANC) was not related, as shown by p-value= 0.094[21].

According to Prawihardjo in Kurniasih (2020), non-compliance in carrying out ANC during pregnancy can impact the health of the mother and fetus. Pregnant women who do not carry out ANC examinations are most likely not aware of the development of the fetus they contain, so if pregnancy complications occur, they will not be known[19]. Therefore, to prevent this, it is essential to do a complete ANC or K4 examination during pregnancy to avoid pregnancy complications. However, a study stated that adherence to ANC examination was unrelated to the pregnancy diagnosis. Fatkhiyah et al. (2020) stated that the results of a routine pregnancy diagnosis or not obtained from a pregnancy examination, the pregnant woman was exactly obedient in carrying out regular ANC K4 visits[20]. Conducting ANC examinations as early as possible is crucial so pregnant women and their families can make an appropriate plan to enable optimal follow-up care until delivery later[22]. With optimal treatment planning, it is hoped that the incidence of pregnancy complications can be minimized so that they do not occur.

Correlation Analysis between Fe-3 Tablet Administration Coverage with Pregnancy Complications in Surabaya

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The results of the correlation analysis between the coverage of Fe-3 tablets, the coverage of ANC K4, and the incidence of pregnancy complications (Table 2).

Table2. Correlation of coverage of Fe-3 and ANC K4 tablet administration with the incidence of pregnancy complications in Surabaya in 2019

Variable	Pregnancy Complications			Strength
	Amount	*Sig. (2-tailed)*	Correlation coefficient	
	N	p-values	r-value	
Fe-3 Tablet Coverage	31	0.001	0.985	Very strong
ANC coverage K4	31	0.001	0.982	Very strong

The correlation between the coverage of Fe-3 tablet administration and the incidence of pregnancy complications that occurred in Surabaya in 2019 can be seen in table 2. This table shows that the coverage of Fe-3 tablet administration to pregnant women had a significant relationship with the incidence of pregnancy complications in Surabaya in 2019 (p-value= 0.001) and has a solid correlation with an R-value of 0.985. The administration of Fe-3 tablets and the incidence of pregnancy complications has a positive relationship, so if the coverage of Fe-3 tablets in an area is high, the incidence of pregnancy complications will also be high. Theoretically, high coverage of Fe tablets is expected to reduce the incidence of pregnancy complications. However, the results showed the opposite. This could also be seen in the distribution map between the coverage of Fe-3 tablets administration and pregnancy complications in Surabaya. Giving Fe-3 tablets is one of the activities carried out in Antenatal Care services. The provision of Fe-3 tablets for at least 90 days during pregnancy is a prevention program from the government to reduce the occurrence of anemia in pregnant women so that the prevalence of anemia can also be reduced[7]. In addition, Fe-3 tablets are also expected to reduce the risk of complications in pregnant women. The possibility of a difference between expectations and actual events related to pregnancy complications was high even though the coverage of Fe tablets administration is quite good due to several factors such as parity knowledge and experience. These factors could affect the adherence of pregnant women to consuming Fe-3 tablets. This finding was in line with the research by Chotimah et al. (2017), which stated that knowledge of pregnant women affects adherence to Fe tablets (p-value= 0.013). Someone with good knowledge will be encouraged to adopt healthy lifestyle behaviors such as taking Fe-3 tablets during pregnancy[23]. In addition, a similar study stated that parity influenced pregnant women to consume Fe tablets because they already had pregnancy experience. If there were a problem in the previous pregnancy, the pregnant woman would prevent similar things from happening by complying with pregnancy services, one of which is taking Fe-3 tablets. This incident can be seen in Pakistan, where adherence to consuming Fe-3 tablets in mothers with previous parity experiences will increase. It is known that in Ali et al.'s study (2021), mothers with parity experience of >2 children had a percentage of consuming Fe-3 tablets of 56%, while mothers with parity ≤ 2 children were slightly lower (44%)[24]. Even though the coverage of Fe-3 tablets administration is good enough, if the tablets are not consumed after they are given because of the low level of adherence, pregnancy complications will still be high.

Lack of consumption of Fe-3 tablets could impact the health of the mother and fetus. This finding was in line with a study by Abidaturrosyidah and Marlina Fujiyanti (2018) that pregnant women who consumed Fe tablets less than the minimum standard have a 14.412 times greater risk of complications than pregnant women who consume enough Fe tablets[25]. Pregnant women who were less compliant in consuming Fe tablets also affected the incidence of anemia, leading to morbidity and even death for the mother and fetus. This finding was in line with Emilia Silvana's research (2018) that the lack of adherence to taking iron tablets (Fe) was associated with anemia in pregnant women (p-value= 0.024)[26]. However, several studies show no relationship between adherence to consuming Fe tablets and the complications that occurred, as in the study conducted by Sayyid Muhammad Sahil et al. (2021). In this study, there was no correlation between adherence to taking daily Fe tablets and complications in mothers due to various factors such as non-adherence in consuming Fe tablets and mothers who have a history of anemia will be referred to advanced health facilities so that the risk factors that occur can be minimized[27]. A large number of pregnancy complications in Surabaya, even though the coverage of Fe-3 tablets administration was quite good, may have occurred because of the mother's non-compliance in consuming the tablets. Adherence to consuming Fe tablets can be measured from the amount consumed, the accuracy of how to take Fe tablets, and the frequency taken per day[26].

Correlation Analysis between the Coverage of ANC K4 Activities and the Incidence of Pregnancy Complications in Surabaya in 2019

The correlation between the scope of ANC K4 activities and pregnancy complications in Surabaya is shown in Table 3. These results indicate that the scope of ANC K4 activities with the incidence of pregnancy complications that occurred in Surabaya in 2019 had a significant relationship (p-value of 0.0010 and had a strong correlation relationship seen from an r-value close to 1 with 0.982. In addition, the scope of ANC K4 activities and the incidence of pregnancy complications had a unidirectional relationship, so if ANC K4 activities in an area increase, pregnancy complications will also increase.

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This finding can be seen from the distribution map between the scope of ANC K4 activities and pregnancy complications in Surabaya[7].

Several things, such as the implementation of antenatal screening, can influence the high incidence of complications. Antenatal screening helps anticipate an obstetric emergency that can be used to reduce maternal mortality and morbidity due to complications[28]. The delay factor can also affect maternal death and morbidity due to complications such as the danger signs of complications that are recognized too late, the lack of making decisions, the delay in arriving at health facilities, and the lack of time for emergency treatment[3]. This delay may occur because the implementation of antenatal screening is not carried out according to the type or program that has been determined. The programs that are usually carried out during antenatal screening for pregnant women consist of: (1) checking the condition of the mother and fetus, (2) carrying out Hb and urine tests to determine protein and glucose levels, (3) providing knowledge to pregnant women regarding conditions that can affect health, such as the incidence of anemia, chronic energy deficiency (KEK), urinary tract infection (UTI), and also danger signs that are often encountered during pregnancy[29]. Therefore, antenatal screening is vital because the better the antenatal screening is, the better the incidence of complications can be prevented.

Pregnant women who adhere to antenatal care services, especially ANC K4, can be a factor in reducing the incidence of pregnancy complications. This finding follows research conducted by Mahendra et al. (2019) that "compliance of pregnant women doing Antenatal Care (ANC) was associated with the incidence of pregnancy complications at the Tiudan Health Center, Gondang District, Tulungagung Regency." This study was shown by 63.3% of respondents who adhered to ANC and did not experience complications[11]. Other research also states that pregnant women who attend less than the specified number of antenatal visits will have a higher risk of postpartum bleeding, eclampsia, and other intensive care than pregnant women who comply with their ANC visits. Mothers who do not perform ANC regularly have a 12 times greater risk of worsening their condition and 53 times greater of having a worsening of their babies. In addition, it is also stated that non-compliance in carrying out ANC can provide a higher risk of death in neonates compared to mothers who attend ANC visits as recommended[30]. Compliance in implementing ANC K4 is influenced by many factors such as knowledge, education, husband's support, and support from health workers[31]. The influencing factors align with the research results from Santi Marianna (2015) that pregnant women with good knowledge have a 3.010 times greater chance of carrying out ANC K4 examinations than mothers with less knowledge. Prasetyaningsih also explained that knowledge was related to Antenatal care visits with a p-value of 0.005[32]. Knowledge from a mother cannot be separated from the education she undergoes. A person's ability to absorb and understand explanations regarding risk factors that can occur during pregnancy so that they understand the importance of implementing ANC K4 can be influenced by educational status[11]. In addition, the support of husbands and health workers is also a supporting factor for a mother to carry out examinations where the support will reduce her anxiety.

The research proved a strong relationship between ANC K4 activities and pregnancy complications. Sri Untari and Sehmawati (2019) explained that antenatal care could detect pregnancy complications early so they can be treated immediately and not worsen. Pregnant women who routinely make ANC visits have a 70% chance of knowing their pregnancy complications. However, pregnant women who routinely carry out ANC examinations in this study also often experience complications, where almost 58.72% of pregnant women experience pregnancy complications at different gestational ages [33]. Pregnancy complications can occur in the first trimester until before delivery and are sometimes not accompanied by symptoms felt by pregnant women. Therefore, it is possible that many pregnancy complications that occurred during the antenatal care service during ANC K4 had not been detected at the previous examination.

CONCLUSIONS

The mapping results in the Surabaya area showed pregnancy complications in all areas. The coverage between ANC K4 activities and the administration of Fe-3 tablets tends to be the same. Most cases of pregnancy complications were found in areas with the highest coverage of Fe-3 tablets and high ANC K4 activities. Between the coverage of Fe-3 tablets administration and ANC K4 activities, there was a strong relationship with the incidence of pregnancy complications in Surabaya in 2019. Socialization regarding the importance of antenatal care visits and consumption of Fe tablets must be intensified, especially in areas with low coverage. In addition, it is necessary to know more clearly the factors which are the reasons for the highest number of complicated cases in areas with the highest coverage so that ways to reduce the number of cases can be identified.

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