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Epidemiology of Anemia in Pregnant Women in the Coastal Region of the North Buton Regency, Southeast Sulawesi

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Abstract.
Anemia in pregnant women is one of the most common pregnancy problems and affects the health of mothers and babies. The objective of this study was to determine the epidemiology of anemia in pregnant women in the coastal area of the North Buton Regency. This research is a quantitative research using secondary data. Data of anemia in pregnant women from 2016 to 2020 was obtained from the North Buton District Health Office. The prevalence of anemia in pregnant women in North Buton Regency was very high. Most pregnant women suffer from mild anemia with an Hb value of 8-11 mg/dL. Kulisusu District had the highest number of pregnant women with anemia. The high prevalence of anemia in pregnancy requires urgent intervention to prevent complications to mother and baby.

Keywords: Anemia, pregnant women, coastal areas

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1. INTRODUCTION

Anemia in pregnant women is one of the problems that often happens during pregnancy [1]. Anemia in pregnant women is characterized by low levels of hemoglobin in the blood which is less than 11g/dL. The classification of anemia in pregnant women consists of three are mild anemia with hemoglobin values between 10-10.9 mg/dL, moderate anemia with hemoglobin values between 7-7.9 mg/dL and severe anemia with hemoglobin values <7 mg/dL [2] . The main cause of anemia in pregnant women is the non-fulfillment of important nutritional needs during pregnancy such as the need for iron, folat and other micronutrients [3]. Additional factors are maternal age, number of pregnancies, socioeconomic conditions, information and access to health and cultural services also affect the cases of anemia in pregnant women [4].

Anemia that occurs in pregnant women can increase the risk of disease and death for both mother and baby. In infants can occur polyhydroamnion, premature birth, low

birth weight, and infant mortality at birth and developmental disorders [1]. Meanwhile, mothers who experience anemia are at risk of experiencing childbirth and postpartum bleeding, maternal mortality during childbirth and health problems and quality of life [5].

Nearly half of pregnant women worldwide are anemic. A number of developing countries have a high prevalence of anemia in pregnant women. The prevalence of anemia in pregnant women in Ghana reaches 43% [4], in China the number of pregnant women who experience anemia reaches 25% [1], in Ethiopia the number of pregnant women who experience anemia reaches 24% [5]. In Indonesia, based on the results of the 2018 Basic Health Research, it was found that 49% of pregnant women were anemic [6]. The prevalence of anemia in pregnant women in the North Buton Regency is also high. Data from the North Buton Health Office from 2016 to 2020 showed that about 3000 pregnant women who underwent hemoglobin checks at the Public Health Center, more than 50% of them were anemic.

The area of North Buton Regency consists of a lowland area and partly hilly with very fertile soil, especially those located on the coast. North Buton Regency consists of mountain ranges and is slightly curved to the north and horizontally to the south with an average height of 300-800 meters above sea level. The eastern part along the mountainous direction is a hilly area and flat to the east coast with area varies. The lowlands are quite extensive, namely the Lambale Basin <29,000 ha parallel to the Lambale River and Langkumbe River.

Hemoglobin concentration was significantly correlated with altitude [7]. Hemoglobin levels are influenced by the percentage of oxygen in an area. At high altitudes (above 1000 meters), the partial pressure of oxygen decreases in the atmosphere causing lower oxygen saturation of the blood. As a physiological response to a decrease in oxygen partial pressure, the body will increase the production of hemoglobin [8]. Meanwhile, in lowland and coastal areas, the production of hemoglobin in the blood tends to be normal [7]. Thus, the environment can affect individual hemoglobin levels.

Efforts have been made by the Health Office through the Public Health Center in the North Buton Regency to prevent anemia in pregnant women, namely by giving iron tablets (90 tablets) to meet the iron needs of mothers. However, the program of giving iron tablets to pregnant women who suffer from anemia in the North Buton Regency has not shown significant results. Therefore, the objective of this study was to determine the epidemiology of anemia cases in pregnant women in the coastal area of North Buton Regency.

2. METODHOLOGY

This research method is a quantitative method using secondary data. Data on cases of anemia in pregnant women from 2016 to 2020 were obtained from the North Buton Health Office. The results of the study are presented in the form of a graph with narration.

3. RESULT OF THE STUDY

The research results can be presented using a bar chart accompanied by an explanation that can be presented as follows:

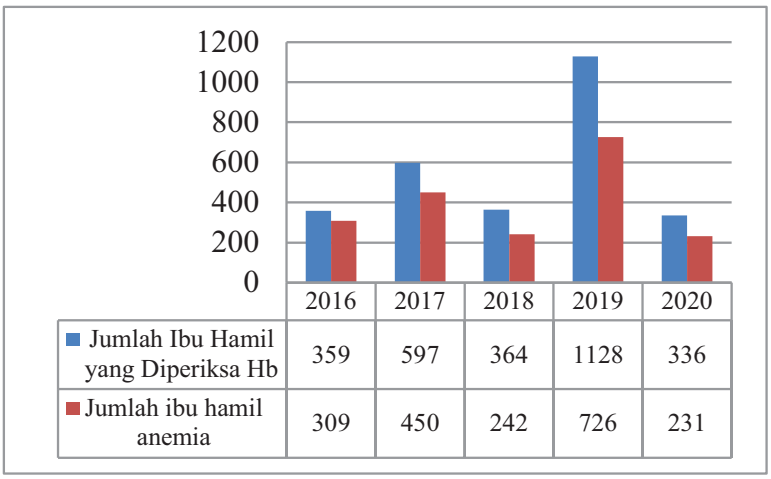

Figure 1: Comparison of the number of pregnant women tested for hemoglobin and the number of pregnant women with anemia in the North Buton Regency.

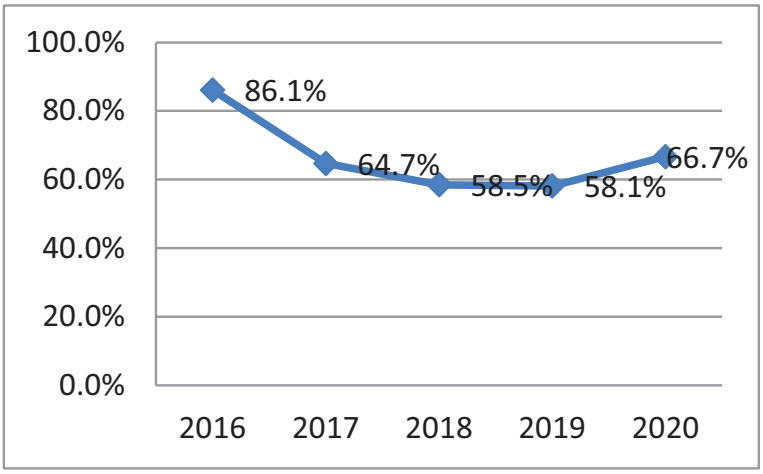

Figure 2: Prevalence of Anemia in Pregnant Women in the North Buton Regency.

The results of data processing show that the prevalence of anemia in pregnant women in the North Buton Regency from 2016 to 2020 ranges from 58%-87%. From 2016 to

2019, there was a decrease in the prevalence of anemia in pregnant women. However, in 2020, there is an increase in the prevalence of anemia in pregnant women.

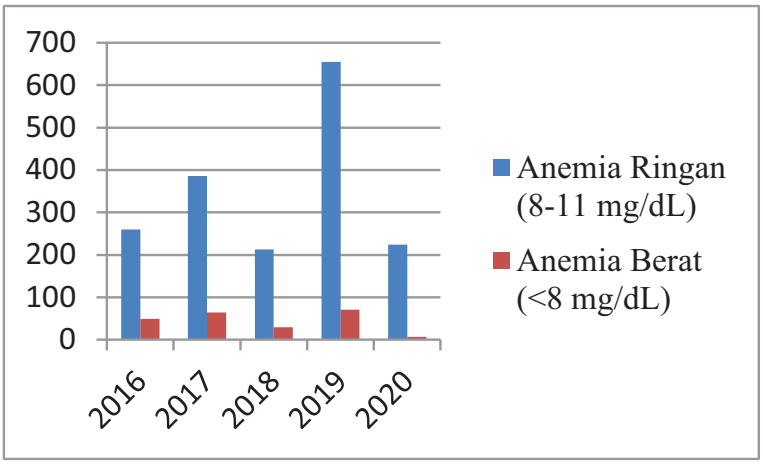

Figure 3: Cases of Anemia in Pregnant Women by Categories of Mild Anemia (Hb=8-11 mg/dL) and Severe Anemia (Hb<7 mg/dL) in North Buton Regency.

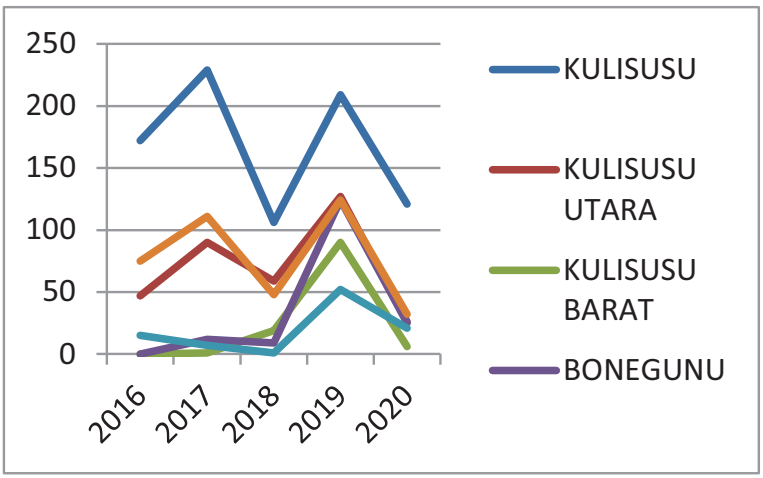

Figure 4: Anemia Cases in Pregnant Women by District in North Buton Regency.

Anemia cases in pregnant women based on Districts in North Buton in 2016-2020 show that Kulisusu District has the highest number of cases of pregnant women with anemia. Meanwhile, Kambowa District has the lowest number of cases of pregnant women with anemia.

4. DISCUSSION

The prevalence of anemia cases in pregnant women in the North Buton Regency from 2016 to 2020 averaged 66.82%. This value is higher than the national prevalence of anemia in pregnant women which is 49%. The high prevalence of anemia in pregnant

women shows that anemia in pregnant women in North Buton Regency is a major public health problem. The prevalence of cases in this study is higher than in other countries. Studies conducted in Nepal [8] and Northern Ghana [2] reported 17% and 50% cases of anemia in pregnant women, respectively. However, the prevalence in North Buton Regency is lower than that of pregnant women with anemia in Tanzania with a prevalence of 81% [9]. This difference may be caused by factors of education, knowledge, socio-culture, diet and food consumed by the mother before and during pregnancy.

Based on the category of anemia, the number of pregnant women with mild anemia (n=1738/88.76%) was higher than those with moderate anemia (n=.220/11.23%). The results of this study are in line with research in other countries. Research in Ethiopia and Southern Ethiopia respectively showed 93% and 67% of pregnant women had mild anemia [3,5]. In this study, the level of education and knowledge of the mother became an important risk factor for anemia. Education has an influence on anemia through knowledge and awareness of mothers about the importance of maintaining health and meeting the nutritional needs needed during pregnancy.

Based on the sub-districts in North Buton Regency, the highest anemia cases occurred in Kulisusu District and the lowest in Kambowa District. Research in China found that a higher prevalence of anemia was found among pregnant women from rural areas [1]. In North Buton, although most of the area is a rural area, the Kambowa sub-district is an agricultural area that produces brown rice. Brown rice has a higher iron content than ordinary rice [10]. However, a study in Tanzania found that the high prevalence of anemia in pregnant women was influenced by the lack of meat consumption because the price was relatively expensive, so people only consumed carbohydrate foods mixed with vegetables and fish that were available seasonally [9]. This shows that the importance of education for mothers and families to combine foods rich in nutrients in their daily diets so that nutritional needs can be fulfilled and prevent the incidence of anemia.

5. CONCLUSION

The prevalence of anemia in pregnant women in North Buton Regency is very high. Most pregnant women suffer from mild anemia with an Hb value of 8-11 mg/dL. Kulisusu District has the highest number of pregnant women experiencing anemia. The high

prevalence of anemia in pregnancy requires urgent intervention to prevent complications for mother and baby. Health workers need to focus on counseling about nutritional needs, especially iron for pregnant women.

6. AUTHORS' CONTRIBUTIONS

The authors have contributed to the preparation of this article.

7. ACKNOWLEDGMENTS

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