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HIGH-RISK PREGNANCY SCREENING FOR PREGNANT WOMEN

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ABSTRACT
High-risk pregnancies lead to increased maternal mortality both globally and nationally and have negative impacts on both mothers and fetuses. The Maternal Mortality Rate (MMR) is one indicator in assessing the quality of health services. Screening for factors causing high-risk pregnancies is important. This study aims to identify high-risk pregnancies in pregnant women in the Karang Intan 2 Community Health Center area. This study used a descriptive analytical design with 51 respondents. Data collection was conducted from March to August 2025 with the sampling technique used was total sampling. This study used measuring instruments such as a blood pressure monitor, a glucometer, and a hemometer. Demographic data included age, education level, occupation, family income, gestational age, parity, ANC visits, medical history, abortion history, and premature birth history. Data were analyzed using univariate analysis to observe the frequency distribution of demographic data and measurement check up. The results showed that 49 (96.08%) respondents did not experience gestational hypertension, 41 (80.39%) respondents did not experience anemia, and all respondents did not experience gestational diabetes mellitus. Several other risk factors also influence the occurrence of pregnancy complications. Research shows that pregnant women are at high risk for increasing the occurrence of complications and dangers in pregnancy.

Keywords: anemia in pregnancy; gestational diabetes mellitus: gestational hypertension; high-risk pregnancy

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INTRODUCTION

Pregnancy is a physiological condition for a woman. The periods of gestation, childbirth, and postpartum are times when a mother is at high risk of experiencing various health problems and complications (Direktorat Statistik Kesejahteraan, 2024). Pregnant women need to understand and identify their pregnancy process to ensure a healthy and quality pregnancy. Maternal health and well-being are indicators for assessing the quality and success of health programs. One such indicator is the Maternal Mortality Rate (MMR). This relates to the sensitivity of health services, both in terms of accessibility and quality, and is a key indicator of health development (Kementerian Kesehatan RI, 2024).

According to data from the National Center for Health Statistics, the maternal mortality rate in the United States in 2023 was 669 (8.6%) deaths per 100,000 live births. The data trend shows a decrease from 2022, when the maternal mortality rate was 817 (22.3%) deaths per 100,000 live births (Hoyert, 2024). Indonesia still has one of the highest maternal mortality rates among ASEAN countries. According to the 2020 Long Form Population Census, the maternal mortality rate (MMR) in Indonesia was 189 per 100,000 live births. This figure has decreased from the previous four-year period. The number of maternal deaths in Indonesia in 2024 is projected to be 4,150, down from 4,482 in 2023. The maternal mortality rate (MMR) in South Kalimantan Province in 2024 was 146 per 100,000 live births, an increase from the previous year's 145 per 100,000 live births (Kemenkes, 2025). According to data from the South Kalimantan Provincial Health Office, the maternal mortality rate (MMR) in 2022 was 89, followed by 92 in 2023, and 84 in 2024. Based on these data,

the trend continues to fluctuate in the number of maternal deaths. Banjar Regency is one of the regencies/cities in South Kalimantan Province. The number of maternal deaths in Banjar Regency increased by 20 in 2024, compared to 11 in 2023 (Dinkes, 2025).

The high maternal mortality rate stems from the high number of high-risk pregnancies that occur in pregnant women. Pregnant women are vulnerable to health problems, even those considered healthy. High-risk pregnancies can negatively impact both the mother and the fetus. The risk of death within one year can occur during pregnancy or after delivery, depending on one or more pregnancy complications experienced (Arshad et al., 2024; Parmawati et al., 2020; Syairaji et al., 2024). Factors that make a pregnancy high-risk include pre-existing health conditions, pregnancy-related health conditions, lifestyle factors and other health risk conditions during pregnancy (Ratnaningtyas & Indrawati, 2023). Pregnancy-related health conditions that can cause potential complications include gestational diabetes mellitus, low birth weight, multiple pregnancy, hypertension in pregnancy, preeclampsia, eclampsia, placental conditions such as placenta previa or placental abruption, previous premature birth, or other complications in previous pregnancies, and too much or too little amniotic fluid (Arshad et al., 2024). Risk factors that can be identified before pregnancy are related to sociodemographic conditions such as being under 15 years old or over 35 years old, having abnormalities in the reproductive organs, drug use, and having a history of abortion and infertility (Meireles et al., 2021).

Gestational hypertension, gestational diabetes mellitus, and anemia are common problems or diseases in pregnant women and are among the causes and complications of pregnancy. Hypertension and diabetes mellitus are two common cardiometabolic disorders in mothers and can endanger their health. Gestational hypertension is a leading cause of maternal and fetal mortality and mortality. Pregnant women with impaired glucose metabolism are at high risk of developing gestational diabetes mellitus later in life and increasing maternal mortality. In addition to hypertension and diabetes mellitus, anemia in pregnancy is also a global health problem, causing a significant proportion of maternal deaths (Arakeri et al., 2025; Jiang et al., 2022).

According to the 2023 Banjar Regency Health Profile, complications in pregnancy are estimated to occur around 15-20%. Data trends show a decrease in the prevalence of high-risk pregnancies in 2023, reaching 48.7% compared to 64.6% in 2022. However, data on hypertension in pregnancy still dominates as a cause of maternal death. Furthermore, awareness among pregnant women about taking iron supplements remains low, even though this is crucial for preventing anemia (Dinkes Kabupaten Banjar, 2023). The Karang Intan 2 Community Health Center (Puskesmas Karang Intan 2) is one of the areas in Banjar Regency with a high-risk population of pregnant women. Interviews with the midwife coordinator for maternal and child health revealed that many pregnant women have been referred for pregnancy-related issues in recent months. Some have been diagnosed with high-risk pregnancies, while others have not. Identifying high-risk pregnancies is crucial for maintaining the health and well-being of both mother and fetus during pregnancy. Therefore, this study aims to conduct initial screening to identify high-risk pregnant women in the Karang Intan 2 Community Health Center.

METHOD

This research is a quantitative research with analytical descriptive study and has obtained a certificate of passing the ethical test with number 183/EC/KEPK-DPDPPNI/VII/2025 from the ethics commission of the DPD PPNI Banjarbaru City. The number of respondents used in this study was 51 pregnant women with a total sampling technique. This study used measuring instruments such as a blood pressure monitor, a glucometer, and a hemometer. Demographic data included age, education level, occupation, family income, gestational age, parity, ANC visits, medical history, abortion history, and premature birth history. Data collection was carried out from March to August 2025 in the Karang Intan 2 Community Health Center Area, Banjar Regency, South Kalimantan

Province.

The study was conducted twice in the Karang Intan 2 Community Health Center Hall and at the respondents' homes. The researchers also coordinated with the Head of the Karang Intan 2 Community Health Center regarding the implementation of the study. Prior to blood pressure measurements, glucose levels, and Hb levels, respondents completed a questionnaire, followed by a finger prick to collect blood samples and a drop of blood on a strip. Data were analyzed using univariate analysis to observe the frequency distribution of demographic data. Furthermore, the analysis also described the number of respondents experiencing gestational hypertension, gestational diabetes mellitus, and anemia during pregnancy.

RESULT

Table 1.
Distribution of Respondents (n=51)

Respondent Characteristics	f	%
Age		
<20 tahun	1	1,96
20 – 35 tahun	43	84,31
>35 tahun	7	13,73
Education Level		
Elementary school	24	47,06
Junior high school	8	15,69
Senior high school	18	35,29
Tertiary school	1	1,96
Occupation		
Civil Servants	0	0,00
Traders	4	7,84
Farmers	6	11,76
Private Sector	1	1,96
Others	4	7,84
Not Working	36	70,59
Family Income		
IDR. <1.500.000	21	41,18
IDR. 1.500.000 – 2.500.000	14	27,45
IDR. 2.500.000 – 3.500.000	11	21,57
IDR. >3.500.000	5	9,80
Gestational Age		
Trimester I	13	25,49
Trimester II	26	50,98
Trimester III	12	23,53
Parity		
Primipara	19	37,25
Multipara	32	62,75
Antenatal Care Visits		
None	2	3,92
<3 times	14	27,45
3 – 6 times	31	60,78
>6 times	4	7,84
Medical History		
Yes	9	17,65
No	42	82,35
History of abortion		
Yes	7	13,73
No	44	86,27
History of premature birth		
Yes	3	5,88
No	48	94,12

Based on table 1, the results show that the age of the majority of respondents is in the range of 20 years - 35 years, amounting to 43 people (84.31%). The highest level of education of respondents is

elementary school level, amounting to 24 people (47.06%). Most respondents are unemployed, amounting to 36 people (70.59%), and most respondents have an income of Rp. <1,500,000, amounting to 21 respondents (41.18%). The gestational age of respondents is mostly in the second trimester, amounting to 26 people (50.98%), and most respondents are multiparous, amounting to 32 respondents (62.75%). Most respondents made antenatal care visits with a range of 3 - 6 times, amounting to 31 respondents (60.78%), most respondents have no history of disease, amounting to 42 respondents (82.35%), most respondents have no history of abortion, amounting to 44 respondents (86.27%), and most respondents have no history of premature birth, amounting to 48 respondents (94.12%).

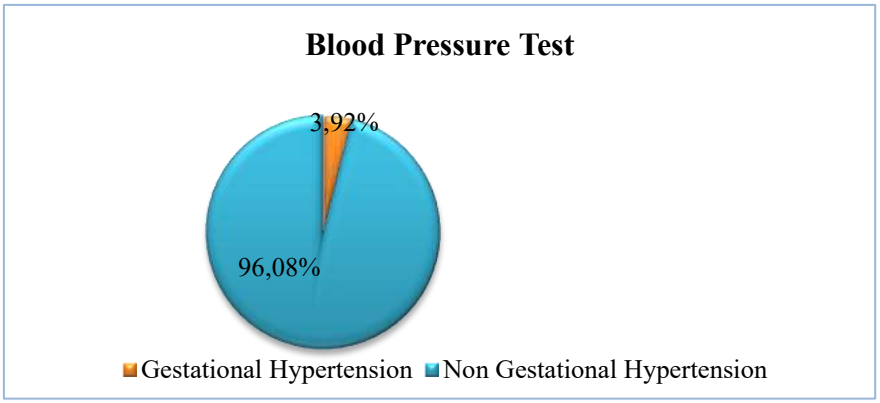

Figure 1. Distribution of Blood Pressure Examination Results

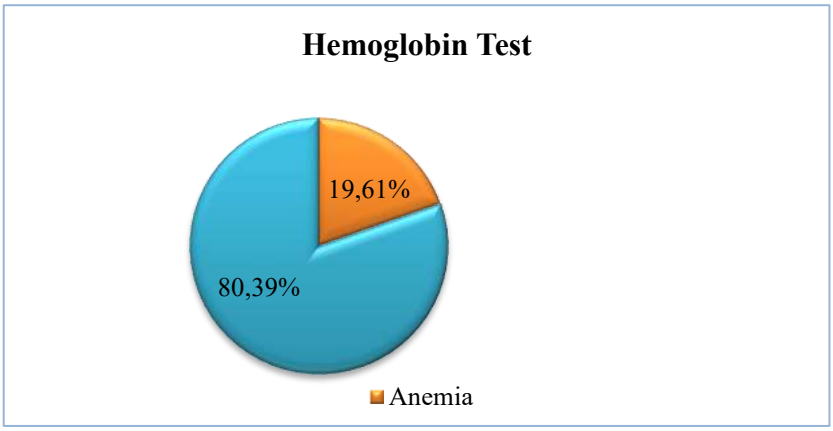

Figure 2. Distribution of Hemoglobin Examination Results

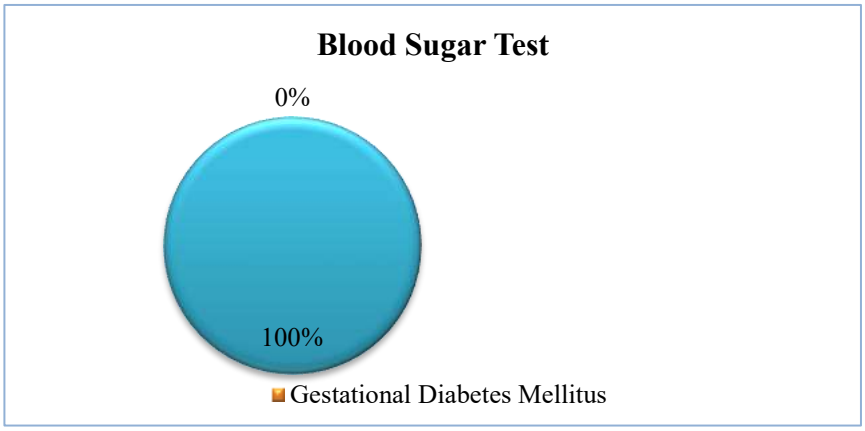

Figure 3. Distribution of Blood Sugar Test Results

Based on Figure 1, the results of the blood pressure examination of the respondents were mostly within normal limits or did not experience gestational hypertension as many as 49 people

(96.08%), while respondents who experienced gestational hypertension were 2 people (3.92%). The results of the study in Figure 2 show that in the results of the Hemoglobin examination in pregnant women, most Hemoglobin levels were within normal limits or were not anemic as many as 41 people (80.39%) and respondents who experienced anemia were 10 people (19.61%). In the results of the random blood sugar examination, all respondents did not experience gestational diabetes mellitus.

DISCUSSION

Early detection of pregnancy risk factors is a key pillar in efforts to reduce morbidity and mortality rates in pregnant women, especially in primary health care facilities such as Community Health Centers. Screening efforts during pregnancy can be the foundation for health facilities to significantly reduce maternal and infant mortality rates if followed by rapid referrals and appropriate medical treatment (Prasetyo & Suryani, 2021). Research from Purwaningsih explains that as many as 90% of high-risk pregnant women are successfully referred and receive further care at more comprehensive health facilities (Heni Purwaningsih et al., 2022). This can be the basis for the importance of screening for health complications in pregnant women to effectively reduce maternal and infant mortality rates due to early treatment. The results of the study indicate that pregnant women in the Karang Intan 2 Community Health Center area have the potential to experience high-risk pregnancies. This can be seen from the presence of accompanying risk factors. Gestational hypertension, gestational diabetes mellitus, and anemia are problems or diseases that often occur in pregnant women and are included in the causes and complications of pregnancy. Risk factors that can contribute to the occurrence of high-risk pregnancies include age, education level, occupation, income, gestational age, parity, antenatal care visits, medical history, abortion history, and premature birth history.

The number of pregnant women experiencing gestational hypertension in this study was 3.92%. Although this figure is still relatively low, several risk factors can increase the risk of gestational hypertension during pregnancy. Pregnant women are at increased risk of gestational hypertension due to changes in the vascular system. Young pregnant women under 20 years of age are susceptible to vasoconstriction due to increased plasma volume, and pregnant women over 35 years of age may experience blood vessel degeneration (Melisa Elisabeth Sinaga et al., 2025). Another study that supports this finding is that low socioeconomic status and low education contribute to the occurrence of gestational hypertension. This influences how individuals determine and raise awareness about antenatal care (ANC) checkups to determine or assess their health status. Furthermore, other factors that can influence the occurrence of gestational hypertension include parity, number of ANC checkups, residence, delivery history, previous medical history, and smoking and alcohol consumption (Debebe Argago et al., 2025). Other supporting research indicates a relationship between age, parity, and hormonal contraceptive use in the incidence of gestational hypertension (Lamak et al., 2024). This research aligns with research by Puteri Andika et al., which found that 63.6% of pregnant women aged <20 and/or >35 years experienced hypertension during pregnancy. Internal risk factors for hypertension during pregnancy include maternal age, primigravida, family history, history of hypertension, high body mass index, kidney disorders, and pregnancy factors. External factors include knowledge, education, attitudes, motivation, and occupation (Andika et al., 2024).

Pregnant women with anemia are at a higher percentage than those with gestational hypertension and gestational diabetes mellitus. The prevalence of anemia in pregnant women is the highest, reaching nearly one-fifth of the pregnant population (19.61%), a crucial finding. This research aligns with Amelia's study, which explained that 46.66% of pregnant women experience anemia, with the main causes being inadequate nutritional intake and patterns that meet the standard requirements of pregnant women and suboptimal vitamin intake (Amelia et al., 2025). The cause of anemia in more than 70% of pregnant women is due to deficiency of vitamin B12, iron, folic

acid and food sources that prevent iron absorption are the causes of anemia. (Pasricha et al., 2021) Other factors that cause anemia due to young age are indicated by the age of pregnant women in the age range of 20-35 years and multiparity with 62.7% of pregnant women at the Karang Intan 2 Health Center. This study is in line with previous studies that age factors above 30 years, low education, short birth spacing, multiparity, low income, and low antenatal care visits (Azzam et al., 2025). Pregnant women often interpret anemia as a common symptom of pregnancy. If anemia is not tested through blood tests, a diagnosis of anemia can be difficult. Therefore, prenatal care is crucial to detect various pregnancy problems. However, previous research has largely linked it to low antenatal care visits. Pregnant women who attend antenatal care should undergo screening to confirm the presence of anemia. Without laboratory testing, pregnant women are at high risk of developing anemia during pregnancy (Asobuno et al., 2024).

The finding that pregnant women with gestational diabetes had a prevalence of 0% indicates the success of the screening program or low metabolic factors in this population. This is in line with Umiyah's research, which found that gestational diabetes had a prevalence of 0%, but pregnant women with pre-gestational diabetes had the highest prevalence at 52.4%, indicating that pregnant women need to be vigilant. Normal pregnancies tend to experience progressive insulin resistance and will continue to develop throughout pregnancy starting from the first to third trimester. If vigilance is not taken, it will have a serious impact on the condition of the pregnant woman (Umiyah, 2023). However, research results from previous references state that age factors, previous medical history and use of oral contraceptives are related to the incidence of gestational diabetes mellitus (Zhong et al., 2024). Early and appropriate screening for pregnancy complications is the best way for health workers to improve safety and reduce maternal and infant mortality. High-risk pregnancies remain a public health threat in both developed and developing countries, contributing to maternal and perinatal mortality and morbidity. Better strategies, particularly enhanced screening programs and treatment protocols, and increased awareness of the signs of complications or dangers in pregnancy, are needed to reduce high-risk pregnancies. Furthermore, the importance of access to health facilities, such as antenatal care (ANC) and medical intervention, is crucial for reducing maternal and infant mortality (Sitanggang & Ananda, 2025).

CONCLUSION

The results of high-risk pregnancy screening in the Karang Intan 2 Community Health Center (Puskesmas Karang Intan 2) provide specific data related to health challenges faced by pregnant women. The data above illustrates that of the three complications, anemia in pregnant women has the highest percentage, clearly indicating that anemia is a major challenge that must be addressed immediately. Meanwhile, the risk of blood sugar levels shows very good results. Increased efforts are needed through broader screening programs and treatment protocols. Health education can be provided to increase knowledge and awareness of the signs of complications or dangers in pregnancy.

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