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# Description of Hemoglobin Levels for Pregnant Women Workers of The Djarum Cigarette Factory at The Mejobo Kudus Health Center

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## Abstract

During pregnancy a woman is very susceptible to disorders of low levels of hemoglobin in the blood. Low hemoglobin values are associated with clinical problems such as anemia. Anemia can be more severe due to several factors, such as trimester of pregnancy, type of work, education, infectious diseases and so on. Most of the pregnant women in the Kudus Regency are pregnant women who work in cigarette factories. Pregnant women who work in cigarette factories will have an impact on their pregnancy, based on the theory that tobacco as a raw material for cigarettes contains addictive substances that are harmful to health. The purpose of this study was to find out the description of hemoglobin in pregnant women working in the Djarum cigarette factory at the Mejobo Kudus Health Center. This type of research is descriptive. The research was carried out in May 2022 and the examination was carried out at the Mejobo Health Center. Sampling with purposive sampling technique as many as 25 respondents. Analysis and data processing using tables. The results obtained from 25 respondents mostly had an average hemoglobin level of 12.3 g/dl, where the majority of respondents had normal hemoglobin of 88%. The majority of respondents do not experience anemia, this can occur because when working pregnant women use complete APD, from head coverings, masks, and aprons to protect themselves.

**Keywords**: hemoglobin; pregnant mother; cigarette factory workers

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## Introduction

During pregnancy a woman is very susceptible to experiencing low levels of hemoglobin in the blood. Low hemoglobin values are associated with clinical problems such as anemia. The Centers for Disease Control and Prevention (CDC) defines anemia as a hemoglobin level lower than 11 gr/dl in the first and third trimesters, less than 10.5 gr/dl in the second trimester. Anemia can be more severe due to several factors, such as the third trimester of pregnancy. , type of work, education, infection and so forth. The majority of pregnant women in the Kudus Regency area are pregnant women who work in cigarette factories. Pregnant women who work in cigarette factories will have an impact on their pregnancy, based on the theory that tobacco as a raw material for cigarettes contains addictive substances that are harmful to health. This can be one of the factors causing the mother to have symptoms of anemia or anemia. Based on the background of the problems above, it prompted researchers to conduct research by taking the title "Description of Hb Levels of Pregnant Women Djarum Cigarette Factory Workers at the Mejobo Kudus Community Health Center".

## Method

### Research Tools and Materials

The tools used in this study were a hematology analyzer and a tourniquet.

Materials used in the venous blood study, 70% alcohol, 3 cc syringe, alcohol swab, plaster, EDTA tube, and hematology analyzer tool.

### Ways of working

### How to Take Venous Blood

The area to be taken for blood (median cubital vein) is cleaned with 70% alcohol cotton, let it dry and a tourniquet is placed on the upper arm, approximately above the elbow. The patient is asked to clench his fist so that the veins are clearly visible. The syringe needle is inserted into the vein with the needle eye facing up. After it appears that blood is flowing in the syringe, the syringe suction is withdrawn slowly until as much as 3 ml of blood can be obtained. Remove the tourniquet and take the cotton and place it over the puncture site. The needle and syringe are removed slowly, the puncture marks are pressed using alcohol cotton. The needle is removed from the syringe, and blood is drawn into the EDTA tube through the tube wall.

### How to Check Hb Levels using a Hematology Analyzer

Prepare an EDTA tube containing the patient's blood sample. Press the [MENU] key and select “count” then press enter. Press the [MODE] button then the examination method (“Whole Blood-ALL','WB-WBC/HGH), or “WB-RBC/PLT” will appear on the top screen with a blue display. Then press the [F1] button to write down patient data, the blood sample in the EDTA tube is homogenized and inserted into the sample probe until it touches the bottom of the tube. Press the probe button for the calculation process and the examination results will appear on the screen, then the results are read.

## Results and Discussion

This research was carried out at the Mejobo Health Center Laboratory in Kudus Regency. The sample for the examination is the blood of pregnant women who carry out examinations at the Mejobo Health Center with EDTA anticoagulant. The data used in this research is primary data from the results of examination of hemoglobin levels of pregnant women who work in cigarette factories who carry out examinations at the Mejobo Kudus Health Center.

**Table 1.** Hemoglobin levels based on age in pregnant women who work at the Djarum cigarette factory at the Mejobo Kudus Health Center.

| Age | Hemoglobin | | | Total |
|---|---|---|---|---|
| | Normal | Anemia Light | Anemia Heavy | |
| | Amount (%) | Amount (%) | Amount (%) | Amount (%) |
| 20-29 | 12 (48%) | 1 (4%) | 1 (4%) | 14 (56%) |
| 30-39 | 8 (32%) | 1 (4%) | 0 (0) | 9 (36%) |
| >40 | 2 (8%) | 0 (0) | 0 (0) | 2 (8%) |
| Amount | 14 (88%) | 2 (8%) | 1 (4%) | 25 (100%) |

Based on table 6, it is known that there are 12 pregnant women working in cigarette factories aged 20-29 who have normal hemoglobin levels with an average hemoglobin level of 13.4 g/dl.

**Table 2.**Hemoglobi levels based on the trimester of pregnancy in pregnant women who work at the Djarum cigarette factory at the Mejobo Kudus Health Center.

| Pregnancy Trimesters | Hemoglobin | | | Total |
|---|---|---|---|---|
| | Normal | Anemia Light | Anemia Heavy | |
| | Amount (%) | Amount (%) | Amount (%) | Amount (%) |
| Trimester I | 15 (60%) | 1 (4%) | 1 (4%) | 17 (68%) |
| Trimesters II | 4 (16%) | 1 (4%) | 0 (0) | 5 (20%) |
| Trimesters III | 3 (12%) | 0 (0) | 0 (0) | 3 (12%) |
| Amount | 22 (88%) | 2 (8%) | 1 (4%) | 25 (100%) |

Based on table 7, it is known that there are 15 pregnant women working in a cigarette factory with a gestational age in the first trimester who have normal hemoglobin levels with an average hemoglobin level of 12.8 g/dl.

Table 3. Hemoglobin levels based on length of work in pregnant women who work at the Djarum cigarette factory at the Mejobo Kudus Health Center.

| Length of work | Hemoglobin | | | Total |
|---|---|---|---|---|
| | Normal | Anemia Light | Anemia Heavy | |
| | Amount (%) | Amount (%) | Amount (%) | Amount (%) |
| < 2 yrs | 11 (44%) | 1 (4%) | 1 (4%) | 13 (52%) |
| 2-5 yrs | 9 (36%) | 1 (4%) | 0 (0) | 10 (40%) |
| >5 yrs | 2 (8%) | 0 (0) | 0 (0) | 2 (8%) |
| Amount | 22 (88%) | 2 (8%) | 1 (4%) | 25 (100%) |

Based on table 8, it is known that there are 11 pregnant women who work in cigarette factories with a length of service of <2 years who have normal hemoglobin levels with an average hemoglobin level of 13.0 g/dl.

## Discussion

The results of examination of hemoglobin levels in pregnant women working in the cigarette factory at the Mejobo Health Center showed that out of 25 respondents, most of the respondents had an average hemoglobin level of 12.3 g/dl, where the majority of respondents had a normal hemoglobin of 88%. This shows that the majority of respondents did not have anemia. The results of the hemoglobin levels of the respondents based on the age of the pregnant women showed that the majority of respondents aged 20-40 years were normal or had hemoglobin levels > 11.00 g/dl, or did not have anemia. The results of the respondents' hemoglobin levels based on the trimester of pregnancy showed that the majority of respondents with the first to third trimesters of gestation had normal hemoglobin levels, or did not experience anemia. The results of the respondents' hemoglobin levels based on the length of time pregnant women worked in cigarette factories showed that the majority of respondents with a length of service of <2 years to >5 years had normal hemoglobin levels, or did not experience anemia. Pregnant women who do not experience anemia even though they have worked in a factory for more than 5 years can occur because when working pregnant women use complete PPE, from head coverings, masks, and aprons to protect themselves.

In the study of examining hemoglobin levels of pregnant women who worked at the Djarum cigarette factory at the Mejobo Health Center, the incidence of anemia in pregnant women was still low, the percentage was 12%.

There are many ways that can be done to increase hemoglobin levels in pregnant women so that anemia does not occur which has a negative impact on the health of the mother and fetus in the womb, one of which is by using complete PPE when working in factories. Personal protective equipment is a must that must be carried out by the parties. djarum factory management in each region. The goal is to reduce the number of work accidents that might occur. Personal protective equipment provided by the Djarum factory SKT unit.

For pregnant women, it is better to carry out routine control of the midwife. Have regular check-ups to control fetal growth and the health of pregnant women, especially routinely checking hemoglobin levels in the blood so that they can be detected earlier if anemia occurs and can be treated immediately so as not to have a negative impact on the health of the mother and fetus in the womb.

## Conclusion

1. The average age based on 20-29 years has a hemoglobin level of 12.8 g/dl, while those aged 30-39 years have an average hemoglobin level of 11.9 g/dl, those aged > 40 years have an average hemoglobin level of 12.6 gr/dl .
2. The mean based on gestational age in the first trimester has a hemoglobin level of 12.4 g/dl, whereas in the second trimester the gestational age has an average hemoglobin level of 12.3 g/dl, in the third trimester the gestational age has an average hemoglobin level of 13.3 gr/dl.
3. The mean based on length of work <2 years has a hemoglobin level of 11.4 g/dl, while those with a length of work of 2-5 years have an average hemoglobin level of 12.5 g/dl, for a length of work > 5 years have an average hemoglobin level of 12.6 g /dl.
4. The majority of respondents did not experience anemia with a normal hemoglobin level of 88%.

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