Hemoglobin examination to improvement awareness blood donation on cadres at rw 05 Patangpuluhan, Wirobrajan, Yogyakarta

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ABSTRACT

Background Blood service technicians must be ensure blood to used for transfusion process is safe and quality product. Hemoglobin examination is most of important to blood donation selection. Who will be to take blood donation its must to have normal hemglobin. That condition will be impact to quality of blood product.

Objectif of this community service is to examination hemoglobin on cadres at RW 05 Patangpuluhan, Wirobrajan, Yogyakarta to improvement awarenes blood donation.

Method this community services is: the preparation include obtaining permits, preliminary studies with field observations, collecting materials and preparing tools and materials during activities and coordinating with cadres. Implementation stage are to examination hemoglobin on cadres in Patangpuluhan Village.

Result this community service were 23 cadres who participated, the results obtained were hemoglobin are Normal (34.79%), anemia (47.82%), polistemiavera (4.34%), refusel to examination (13.5%).

Conclusions 23 participants who hemoglobin examination mostly within normal limits
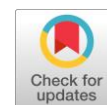
1. Introduction

Blood service is an essential componen of modern health care, there are include donor recruitment, donor selection, to take blood donation, screening for tranfussion transmited infection, processing of blood components and distribution of blood. Blood services the availability of safe blood donors. Blood donors have to a donor selection first to ensure health, blood selection include hemoglobin, vital sign, and blood group examination [1]. Hemoglobin examination is most of important in blood selection donor. Hemoglobin level indicated quality of blood product. Hemoglobin level to normality to take blood donation is between 12,5 gr/dl-17 gr/dl. Blood donor's are risk for reduced iron store, affecting 25-35% of all red blood cell donor with higher prevalence associated with young age, female sex and interval since last blood donation. It have to normality hemoglobin levels [2], [3].

Hemoglobin examination is one of most routine blood selection [4]. Hemoglobin examination is one of the important steps to ensure quality products. Hemoglobin screening has a dual purpose, namely to ensure that blood donors are safe from anemia or hemoglobin deficiency and resulting blood products are safe to be transfused [5], [6]. Hemoglobin level correlation with to improving iron balance in blood donation [7], [3].

Hemglobin examination is usually used as an early detection anemia or monitoring condition blood donors [8], [9]. Cut off blood donors can blood donation differently according to the existing policies in

a blood services. It influenced factors such as demographic conditions and the type of tool or technique used to examination. There are five technique for measuring hemoglobin; fotometri, sulfat of copper, talquist, sahli and cyanmethemoglobin. Cyanmethemoglobin has been recommended technique, because that is of reference methode, meanwhile in the blood services used fotometri technique is more cheaper than cyanmethemoglobin. Hemoglobin examination by taking capillary blood vessel. Sampel from capilary vessel to take with blood lancet and hematocrit tube. Hemoglobin screening in donor selection aims as an effort to evaluate the donor's condition, identify donors from anemic conditions, and ensure the blood products produced are safe and can increase the effectiveness of therapy for recipients or blood users [10], [11].

Most (9.75%) of blood donors were temporarily rejected due to strict donor criteria. One of the things that most often causes blood donors to be temporarily refused to be able to donate blood is hemoglobin levels. Approximately 2-12% of all blood donors show an insufficient Hb value. Hemoglobin levels are very crucial to ensure healthy blood donors and the blood produced is good quality. The minimum limit used to be able to donate blood is 12.5 g/dl for women and 13.5 g/dl for men [12].

Hemoglobin examination is most important blood selection, blood donors have to know about it. Hemoglobin abnormal is often obeserved in long term blood donors [13]. Screnning hemoglobin in the blood selection has been regulated to prevent blood donor and to safeguard the potensial donors health [14]. Based on literature regular blood donation decreased in=ron feritin in blood donors. The blood service should hold ability in protecting blood donors, which is to prevent anemia, so blood services to give iron suplementation after blood donation and counselling about dietary midification [12], [15].

Physical condition especially hemoglobin level is impact to blood donors number. It has decreased on pandemic covid-19, actually blood services have to improve recruitment service to increased motivation blood donation. Based on researchers motivation affected is altruisme, health improvement, peer pressure and reward. So blood services is more creative to recuritment blood donor, there are many methode like as promoted in social media or give away to blood donor to take blood donation in pandemic. Kelurahan Patangpuluhan is one of part Yogykarta city, it's does not have a post for blood donor community. Based on this, we are interested in doing community service by taking the theme " Hemoglobin Examination To Improvement Awareness Blood Donation On Cadres At RW 05 Patangpuluhan, Wirobrajan, Yogyakarta [16].

2. Method

2.1. Participant

Participant in this community service were cadres in Rw 05 Patangpuluhan, Wirobrajan, Yogyakarta as many as 23 participants. The technique sampling is total sampling.

2.2. Procedure Implementation

The Procedure of implementing community service is divided into three steps:

- Steps I (Preparation)

  This is the preparation steps which includes licensing of activities and making a letter of community service assignment, conducting an initial data assessment of counseling to motivate the public to be aware and concerned about knowing hemoglobin levels. After conducting a data assessment, prepare starting from the media, tools, materials and reagents by working together for community service activities. After the technical preparations are complete, inform the cadres of RW 05, Patangpuluhan Village, Wirobrajan District.

- Steps II (Implementation)

  This steps, community service activities will be held in the form of examination of hemoglobin for cadres, Patangpuluhan Village, Wirobrajan District. It is hoped that the community will become more aware and able to realize a blood donor alert village.

- Step III (Reposrt Results)

This stage is the completion of the implementation of the community service program, the next activity is the preparation of a final activity report that will describe the level of success of the implementation of the community service program that has been implemented.

2.3. Procedure Examination

Hemoglobin Examination show as Fig. 1.

Fig. 1. Implementation of Hemoglobin Examination

Based on Fig. 1 hemoglobin examination procedure is :

- Hemoglobin examination using photometric method of hemoglobin level examination, using tools: autoclick, blood lancet, capillary tube, cuvet and Hemoglobin Checker.

- Use handscoen , and do antiseptic are to take blood speciment.

- Taking capillary blood specimens, put in a capillary tube and then flowed into the cuvette.

- Insert the cuvette containing blood into the photometric hemoglobin, wait until the results come out.

- Result from the photometric hemoglobin screen.

- Normal indicator is 12.5-17 g/dl

3. Results and Discussion

3.1. Results

The results achieved in this Community Service on cadres at RW 05, Patangpuluhan Village, this service was followed by 23 participants who examination hemoglobin. Characteristics that see or perform inspections can be seen as follows.

- Characteristics of Respondents Based on Age

Respondents in this community service were followed from various ages, with the youngest age being 30 years old and the oldest being 63 years old. The characteristics of respondents in this service can be seen in Table 1 below:

Table 1. Characteristics of Respondents Based on Age

No	Age (years)	Frequency	Persentage(%)
1.	30-40	9	39.13
2.	41-50	3	13.05
3.	51-60	4	17.39
4.	61-70	7	30.43

Based on Table 1, it shows that the largest percentage of respondents who participate in community service is the age group of 30-40 years (39.13%), and the lowest is the age group of 41-50 years (13.05%).

- Charcteristic

    The characteristics of respondents who take part in this community service based on gender can be seen in Table 2 below.

Table 2.   Characteristics of Respondents Based on Gender

No	Gender	Frequency	Persentage(%)
1.	Male	11	47.82
2.	Female	12	52.18

Based on Table 2 above, the respondents who participated in community service were mostly female participants (52.18%).

- Result Examination

    Examination of hemoglobin is used to determine a person's health status, in this community service as an effort to ensure service participants are in good. The results of the examination of hemoglobin can be seen in Table 3 below.

Table 3.   Result Examination Hemoglobin

Examination Hemoglobin	Frequency	Persentage(%)
Normal	8	34.79
Anemia	11	47.82
Polistemiavera	1	4.34
Refusel Examination	3	13.05

Based on table 3, it shows that abnormal hemoglobin is anemia (47.82%), and Polistemiavera (4.34%)

3.2. Discussion

Blood transfusion service is one of the actions to save human lives, so the existence of a safe and sufficient blood stock is needed. This has an impact on the selection of voluntary blood donors who must meet the donor requirements. The donor selection process is the beginning to ensure quality blood products are produced. Blood donors can be suspended or temporarily rejected due to abnormal hemoglobin levels and vital signs. These two examinations are important indicators in terms of passing someone to be able to donate blood [17].

Based on the results of community service carried out in RW 05 Patangpuluhan, Wirobrajan, it can be seen from the characteristics of the most participants followed by cadres with an age range of 30-40 years as many as 9 people (39.13%). According to (Yuliani et al, 2019) cadres are groups in the community who are willing to voluntarily assist health workers in health promotion efforts to improve public health status. Cadres based on the characteristics of the results of community service are of productive age with an age range of 30-40 years.

According to PMK 91 of 2015 concerning blood transfusion services, hemoglobin examination in donor selection is one of the criteria for a donor to be declared healthy and qualified to donate blood. The hemoglobin level determines that a blood donor has a red blood cell level in the normal category (12.5g/dl – 17 g/dl). Hemoglobin examination is an effort to prepare blood donors in a healthy condition as the embodiment of a blood donor alert village. Based on the results of hemoglobin examination, there were 11 people (47.82%) who had anemia. Anemia can be overcome by changing healthy lifestyle behaviors by consuming sufficient vegetables and protein, reducing caffeine consumption in tea and coffee, and reducing activity at night so that rest patterns are not disturbed.

Regular blood donation can reduce iron levels in the blood, in someone who regularly donates blood will experience a decrease of 0.5 mg per blood donation. The content of iron in the body affects a person's

hemoglobin level. Therefore, hemoglobin level is an important component in blood selection. Abnormal levels of hemoglobin will cause a person to be rejected temporarily, usually takes 4-5 months. During the 4-5 months it is expected that blood donors will improve their lifestyle.

Factor-factor to affecting hemoglobin level are demographics (age, gender, height, weight, body mass index) and life style (Smoking, alcohol drinking, and insomnia), and comorbidities (hypertension, diabetes, ischemic heart disease, congestive hearth failure, stroke, and thyroid disease). A person must maintain a healthy lifestyle so that the hemoglobin level in the body is normal. The presence of prospective blood donors who have normal hemoglobin levels can increase the presence of voluntary blood donors [15].

Blood donors who regularly donate blood, to replacement lost iron levels in the blood, the largest component from food intake (85-90%). Intake of foods that contain lots of iron include grains, vegetables, fruit and if needed additional iron supplements. Controlling for demographic, behavioural and other factors, donation intensity stood out as the most important predictor by far, with those donating 10 or more times over the prior 2 years [18].

Normal hemoglobin levels indicate that the body of a blood donor is in good health. A healthy body will increase a person's motivation to donate blood. Starting from those who don't want to be donors, they become willing to donate their blood, and from those who have donated blood to become regular blood donors. Blood service technicians must begin to socialize and conduct screening related to hemoglobin levels in prospective blood donors. Donor motivation is very influential on the behavior of routinely donating blood. Donors in selfrated good health had a 15% lower risk to stop donating compared to donors in perceived poorer health. Both men and women reporting good health made on average 10% more donations [19], [20].

4. Conclusion

Based on the results of community service activities in the form of examination hemoglobin the results of the examination of hemoglobin to improvement awareness on cadres obtained results are Normal (34.79%), anemia (47.82%), polistemiavera (4.34%), refusel to examination (13.5%).

Declarations

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