

THE EFFECT OF CUPPING THERAPY ON HEMOGLOBIN LEVELS IN SMOKERS AND NON-SMOKERS

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ABSTRACT

Cupping therapy, known as bekam in Arabic and blood cupping in English, is a therapeutic practice mentioned in Islamic teachings and hadiths. It is believed to have health benefits and is recommended for healing. One hadith state: There are three remedies for healing: cupping, drinking honey, and cauterizing with fire. But I forbid my followers from cauterizing with fire (Narrated by Bukhari). Based on this hadith, cupping therapy is considered beneficial for health and treatment. The aim of this study is determining the effect of cupping therapy on hemoglobin levels in smokers and non-smokers. This study employed a quantitative research design with an observational approach using a one-time pretest and posttest without control group design. The research sample was obtained through simple random sampling and consisted of 30 individuals, including smokers and non-smokers. Primary data were collected directly from the cupping therapy procedure, while secondary data were obtained from physical examinations of the respondents. There is no effect of cupping therapy on hemoglobin levels in smokers and non-smokers.

Keywords: Hemoglobin, Cupping Therapy, Smokers, Non-Smokers

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1. INTRODUCTION

According to Rasulullah SAW, there are several ways of curing diseases, one of which is cupping, namely by removing blood so that substances that are not properly metabolized can be removed by the blood coming out through the capillaries. (Syaifullah *et al.*, 2021). Cupping is associated with blood, which consists of plasma, blood cells and cell fragments called platelets. Platelets are responsible for blood clotting. The plasma part contains electrolytes, chemicals, glucose, amino acids, and unsaturated fats (Ayu *et al.*, 2021)

Red blood cells carry hemoglobin which is useful for transporting oxygen from the lungs (Puspitasari, 2021). Red blood cells also play an important role in transport of carbon dioxide. Some small components pass through the hemoglobin bond. While most of the red blood cell bonds are held together by the enzyme carbonic anhydrase, which is an enzyme found in red blood cells and is responsible for catalyzing the conversion of water and carbon dioxide into carbonic acid from tissues (Ilmiah *et al.*, 2021).

Excess carbon dioxide in blood can lead to vascular and cardiovascular disorders because carbon dioxide gas will be transported back to the heart. The bond between hemoglobin and carbon dioxide is called carbaminohemoglobin, which can increase in smokers (Rahmadi, 2018). In fact, while carbon dioxide can readily combine with and cleave from hemoglobin, this is not possible with other molecules such as carbon monoxide (CO). Carbon monoxide has a strong affinity for hemoglobin, making it easier for the two molecules to combine to form carboxyhemoglobin, an inactive form of hemoglobin. As a result, tissue hypoxia occurs because the hemoglobin is unable to bind oxygen, which is then released into the tissue (Ayu *et al.*, 2021). Indonesia is known for country with the largest number of smokers with a percentage of men aged 25-64 years around 66 %, as well as the largest country in tobacco production (Salsabila *et al.*, 2022).

2. METHODS

Quantitative research with observation with *a pretest and post-test measurement without a control group design*. Sampling with *simple random sampling*. The sample for the study was taken from the population of smokers and non-smokers in Banyumas. The sampling of this study was conducted with *G-Power* with a power of 0.95 with an effect size of 0.7 and obtained a minimum result of 30 respondents. Primary data were obtained direct from cupping results and secondary data were obtained from physical examination of the respondents. The research was conducted at the *Lembaga Kursus dan Pengobatan Lebah Emas Purwokerto*. Research period January 2023 - May 2023.

3. RESULTS

Based on the results, the characteristics of the study sample by age are shown in the following table.

Table 1.1 Distribution of Respondents by Age

Age	Frequency	Percentage (%)
18	5	16,7
19	8	26,7
20	3	10,0
21	5	16,7
22	4	13,3
23	1	3,3
29	1	3,3
40	1	3,3
45	1	3,3
47	1	3,3
Total	30	100

Table 1.1 shows that from the total of 30 respondents, the age range was between 18 and 47 years. The highest age was 19 years, namely 8 respondents (26.7%). The lowest age, namely 23 years, 29 years, 40 years, 45 years, 47 years, had 1 respondent each (3.3%).

Table 1.2 Test of Normality

	Hb Levels of Non- Smokers (Before)	Hb Levels of Non- Smokers (After)	Hb Levels of Smokers (Before)	Hb Levels of Smokers (After)
Valid	15	15	15	15
Median	16.800	16.600	16.300	17.500
Mean	16.207	16.027	16.740	17.593
Std. Deviation	2.377	2.356	2.641	2.857
Shapiro-Wilk	0.894	0.924	0.941	0.973
P-Value of Shapiro-Wilk	0.077	0.220	0.401	0.905
Minimum	11.900	10.600	10.800	12.200
Maximum	20.500	19.900	20.800	22.600

*Normality test Shapiro-Wilk *Normal distribution (p>0,05)

The test results in Table 1.2 show that all variables have a p-value >0.05 , which means that the distribution data of hemoglobin levels in the four groups is normally distributed.

Table 1.3 Analysis of the Effect of Cupping on Hemoglobin Levels in Smokers and Non-Smokers

Group 1	Group 2	t	Df	p
Hb Levels of Smokers (Before)	Hb Levels of Smokers (After)	- 1.113	14	0.284
Hb Levels of Non-Smokers (Before)	Hb Levels of Non-Smokers (After)	0.203	14	0.842

* Paired T-test * Significant ($p < 0,05$)

Based on Table 1.3, the statistical test results show that the p-value is 0.284 in smokers and 0.842 in non-smokers, which means there is no difference before and after treatment because the p-value is above 0.05 or (95% confidence).

4. DISCUSSION

The results of the study were not significant, indicating that hemoglobin levels of both smokers and nonsmokers were not affected by cupping. Factors that may influence the outcome of this study may be due to the inappropriate method, which should use a prospective design. The prospective method is a longitudinal study in which researchers follow and observe a group of subjects or a population by measuring research indicators over a period of time. In this study was conducted during a single measurement time only. It is difficult to see the course of the hemoglobin level. The amount and duration of smoking may be factors that influence the results of this study (Heryana, 2020).

When implemented in practice, the duration and number of cigarettes of each respondent were not considered. According to (Septiani, 2022), There is a correlation between the duration of smoking and hemoglobin levels. Carbon monoxide, which accumulates over time, decreases oxygen levels and leads to an increase in hematopoiesis. Other factors that could affect the results of this study were not compared with other hemoglobin testing methods. There are several types of hemoglobin tests. The first method is the Sahli method. The Sahli method is a method for estimating hemoglobin levels. The instruments and materials used are Sahli tubes and require blood to be drawn through a vein. (Lailla *et al.*, 2021). The second method is a *cyanmethemoglobin* using a spectrophotometer with *drabkin* solution (Widiarumiarso, 2018). The method used is the hemoglobin stick (Hb Stick), which uses enzymes to convert the substance being analyzed into an electric current. Chemicals in the blood and reagents react with the blood sample. This reaction produces an electric current proportional to the level of synthetic compounds in the blood, especially specific hemoglobin that perform an oxidation-reduction reaction. In addition, respondents did not perform additional monitoring of factors that affect hemoglobin levels, such as dietary intake and physical activity, which could affect their hemoglobin levels. Anemia can be caused by protein deficiency, which affects hemoglobin formation and leads to disordered iron metabolism (Setyawati and Arifin, 2022). Low hemoglobin levels may indicate iron deficiency in the body or anemia. Compared to people without tuberculosis, people with tuberculosis have lower hemoglobin levels (Nuraini *et al.*, 2021).

5. CONCLUSION

Prevalence of respondents based on age 18-47, the highest respondent was 19 years old with 8 respondents (26.7%) and the lowest respondent was 23-47 with 1 respondent (3.3%). Cupping has no effect on hemoglobin levels in smokers and nonsmokers.

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