

THE EFFECT OF MEDITATION AND HAEMOGLOBIN LEVELS ON LEARNING CONCENTRATION

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THE EFFECT OF MEDITATION AND HAEMOGLOBIN LEVELS ON LEARNING CONCENTRATION

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ABSTRACT

Producing quality graduates is the hope of all the educational institutions, for it during the course of one's physical condition must be healthy and not anemic. In addition concentration is necessary for the student to learn the material provided can be absorbed. Good concentration is when a being in the alpha state, this can be accomplished one of them when students are trained meditation. The research objective is to prove the effects of meditation and haemoglobin levels on learning concentration. Analytical research type experimental design with randomized controlled trials (RCT) and carried for 28 day. population Nursing student in Prodi DIII STIKes Utama Abdi Husada Tulungagung fourth semester amounted to 74 students, with a purposive sampling technique obtained 56 samples, the distribution of control and experimental group (trained meditation) done with Proportionate cluster random sampling technique. Practice meditation conducted for 28 days. HB levels were measured using Cyanmethemoglobin, learning concentration to use Bourdon Wiersma test. The technique of data analysis use independent t test. There is a statistically significant effect of meditation on the learning concentrations, seen from a p-value of 0.000 for speed, p 0.006 for accuracy, and p 0.000 for constancy. There is no statistically significant effect of Haemoglobin levels on learning concentrations, seen from the p-value of 0.933 for speed, p 0.126 for accuracy, and p 0.670 for constancy, this is because in this research was not found samples had higher levels of HB less than normal

Keywords: Meditation, learning concentration, hemoglobin levels (HB)

INTRODUCTION

Learning quality one can be seen from the starting measuring student achievement through the cumulative achievement index (CPI). One can achieve the expected achievement when in the process of learning to concentrate. Various attempts have been made to improve student learning concentration eg improvement of instructional media, improving the quality of lecturers as well as the improvement of facilities and infrastructure supporting learning, but the fact still be obtained Students who are not able to concentrate, including the Students in STIKes Utama Abdi Husada Tulungagung. Concentration learning is centralizing power of thoughts and acts on an object to be examined with flush or set aside everything that has nothing to do with the object being studied (Surya, 2009). One of the tools for

measuring the concentration of learning is *Bourdon Wiersma Test*, including speed, accuracy and constancy. Categorized group concentration measurement results using standard norm values *Wiegthed Scores* (WS). Rate of speed is the quality of attention that is manifested by the cumulative number of seconds in completing the test material. The ability of perception is to describe the precision strike group specified point. Based on the level of vigilance recorded figures shortest and longest completion of the test, is used as the determination of constancy completion of work

Someone who has the HB levels lower than the normal value or mangalami anemia can mangalami thought process disorder, decreased concentration, memory, intelligence and ultimately the learning achievement of children is low (Yuriastien E, Prawitasari D, Febry AB,

2009). H B is a protein that is rich in iron. HB most important function is the transport of oxygen and carbon dioxide (Muttaqin, 2008). To determine whether a person is deprived of blood or not, can be determined by measuring hemoglobin levels. Determination k Adar hemoglobin can be defined in various ways, including a method t allquist, Sahli, oxyhemoglobin method, or a method sianmethemoglobin. But there is another acceptable method in hemoglobinometry clinics, i.e. oxyhemoglobin, and sianmethemoglobin. Limit of normal levels of HB strongly influenced by age, sex, and height of residence from sea level (Hand W and Haribowo USA, 2008). The normal value of hemoglobin of male approximately 14-18 gr am / dL, while women 12-16 gr am / dL (Asmadi, 2008). Values above can be different on each - each laboratory but not would be too far from the value above. There is also a laboratory which does not distinguish between men or women by men or older women.

Good concentration is when a being in the alpha state (relaxed without stress is marked by the opening of 88% subconscious mind (Olivia, 2007). Meditation can make our brain waves to the alpha state (Sukmono, 2013). Exercise regular meditation can help improve our ability to change with the brain consciousness lowering the brain waves of a beta, alpha, theta to delta (Mustajib, 2010). M anfaat meditation among others improve confidence and self-control, m Enhancing the ability to focus the mind, sera can m engeluarkan hormone *endorphin* (Rodenbeck, 2007). *Endorphins* can be generated when the condition of the wave g o no (*Brainwave*) are in phase between *alpha* and *theta*. *Endorphins* not only makes feeling refreshed and energized. *Endorphin* substances can also improve concentration and memory (Mustajib, 2010). Rehearsal meditation within a period of 8 weeks was found to alter brain structure, based on analysis of *magnetic resonance imaging* (MRI) research results from Sara Lazar

researchers from *Psychiatric Neuroimaging Research Program Massachusetts General Hospital* found the density of the substance of gray (*gray matter*) increased in the hippocampus that are important to the process learning, memory, awareness, compassion and introspection, as well as a decrease in the density of gray substance in the amygdala, which plays an important role in anxiety and stress, (Sukmono, 2013). The point of all this depends on the student, unable or unwilling to control yourself to stay focused on what is being learned.

The research objective is to prove the effects of meditation and *haemoglobin levels on learning concentration*. Hypothesis 1) there is the effect of meditation on learning concentration of , 2) there is no effect of HB levels on learning concentration

METHODS

This research analytic experimental design with random control trial (RCT). do in STIKes Hutama Abdi Husada Tulungagung Jl. Dr. Wahidin Sudiro Husodo Tulungagung. population in this research is Student of diploma III Nursing STIKes Tulungagung III level II semester of academic year 2013/2014 which amounted to 74 students. Samples partly Student of diploma III Nursing level II, III semester of 2013/2014 academic year who meet the inclusion criteria, namely the status of active students, willing to become respondents, as well as the exclusion criteria are sick more than 1 week. Samples numbered 56 students.

Meditation is done for 28 days was conducted from May 31 s / d July 2, 2014, primary data collection (HB levels and learning concentration) was made on July 3, 2014 obtained through examination of the levels of HB and assessment of learning concentration, both in the control group (not trained in meditation) and the treatment group (trained meditation). The level of HB manner using a spectrophotometer Cyanmethemoglobin collaboration with the laboratory Enggal Saras Tulungagung, while learning

concentration was measured using an instrument Bourdon Wiersma test. Data analysis techniques, the characteristics of the sample data continuous are described in n, mean, SD, minimum and maximum. Katagorikal data sample data characteristics are described in n and percentage (%). To determine 2 sample unpaired have average values different statistically tested with independent t test

RESULT

A description of the characteristics of the respondents using univariate analysis. The univariate analysis aims to determine the number and percentage of respondent characteristics. Here are the data about the characteristics of respondents who became research subjects

Table. 1 Characteristics of Respondents Research

Gender	Number (n)	Percentage (%)
Man	18	32.1
Female	38	67.9
amount	56	100
HB levels	Number (n)	Percentage (%)
≥ 18 g / dL	6	10.7
12- 18 g / dL	50	89.3

Based on Table. 1 it is known that 38 (67.9%) of the respondents are female, meaning that many study subjects were female. Judging from the level of HB 89.3% of the study subjects had higher levels of HB 12 to 18 g / dL.

Description of the research variable data to the data katagori didiskripikan in n and percentage (%), for

continuous data analysis presented in the form of minimum, maximum, mean and standard deviation.

Presentation data variable research (Data continuous) This aims to determine the average scores HB levels and learning concentration compared with a maximum score of assessment, as follows:

Table. 2 Description of the variable data research HB levels, the concentration of study and meditation status

	N	Minimum	Maximum	Mean	SD
HB levels meditation group	28	13.2	18.6	15.9	1.60
Speed meditation group	28	3.9	12	8.9	2.44
Accuracy meditation group	28	0	15	2.4	3.30
Constancy meditation group	28	0.1	8	1.4	1.71
HB levels of the control group	28	13.5	19.6	15.9	1.70
Speed control group	28	6	14	11.4	1.98
Accuracy control group	28	0	20	5.7	5.10
Constancy control group	28	1.4	15.5	5.8	3.75
Speed group HB levels normal	50	3.9	14	10.1	2.59
Accuracy group HB levels normal	50	0	20	4.4	4.71
Constancy group HB levels normal	50	0.1	15.5	3.6	3.68
Speed group HB levels above normal	6	6.4	12	10.2	1.98
Accuracy group HB levels above normal	6	0	4	1.3	1.51
Constancy group HB levels above normal	6	0.2	9.2	3	3.44
Valid N (listwise)	56				
Granting the status of Meditation	n			%	
Not Meditation	28			50	
Meditation	28			50	
amount	56			100	

Table 2 shows that the participants on the assessment of the levels of HB score the average and maximum values The same good level of HB control group as well as the levels of HB treatment groups. As for the concentration of study in the treatment

group receive an average score and the maximum value is better when compared with the control group. Judging from the status of meditation partially of respondents do meditation as many as 28 respondents (50 %)

Table. 3 Independent T Test results about different of learning concentration between groups of not meditation and meditation

Concentration	Group	n	Mean	SD	t	p
speed	Not meditation	28	11.4	1.98	4,10	0,000
	Meditation	28	8.9	2.44		
Accuracy	Not meditation	28	5.7	5.10	2,86	0,006
	Meditation	28	2.4	3.30		
constancy	Not meditation	28	5.8	3.75	5.61	0,000
	Meditation	28	1.4	1.70		

Table 3 shows that there is a mean learning concentration difference between the 2 groups of student, mean differ significantly because better for the group meditation. Judging from the p value of 0,000 for speed, value of p 0.006 for the

accuracy and value of p 0,000 for constancy. Thus the p-value is smaller than the value of α (5%) or 0.05 means that there is effects meditation with learning concentration.

Table 4 Independent T Test results about different of learning concentration between the study group with HB levels <18.1 and HB levels \geq 18.1

Concentration	Group	n	Mean	SD	t	p
Speed	HB > 18.1	6	10.2	1.98	0.08	0.933
	HB < 18.1	50	10.1	2.59		
Accuracy	HB > 18.1	6	1.3	1.51	-1.55	0.126
	HB < 18.1	50	4.4	4.71		
Constancy	HB > 18.1	6	3	3.44	-0.43	0.670
	HB < 18.1	50	3.6	3.68		

Table 4 shows that the mean difference the concentration of learning between the two groups, the mean was not significantly different. Judging from the p-value 0.933 for speed, the p-value 0.126 for accuracy, and the p-value 0.670 for constancy thus the p-value is bigger than the value of α (5 %) or 0.05 means that there no effect of HB levels with a learning concentration

be examined with flush or set aside everything that has nothing to do with the object being studied, (Surya, 2009). This concentration can be developed through practice, Hakim (2004). For example, through the practice of meditation. Meditation is a conscious process to focus a lot of attention to the course (Suryani, 2006)

DISCUSSION

The effects of meditation on learning concentrations

Concentration learning is centralizing power of thoughts and acts on an object to

Meditation done right means not just sit still and thoughts still wander anywhere will be able to generate positive effects such as increased concentrations of learning. To so do your meditation correctly needs to be done regularly practice meditation. In this study, the treatment group doing the meditation

exercise for 28 days with a long time of 30 minutes a day in STIKes Hutama Abdi Husada Tulungagung. With the practice of meditation on a regular basis, it is expected the students have become accustomed meditative under any circumstances, including in the learning process or while working on a questionnaire Bourdon Wiersma test. This is in line with the opinions Ada (2013) that the benefits of meditation is the harmony of mind, which is not cleaved by the ghost of the past and worries about the future. Students who are already doing the meditation exercise while working on a questionnaire Bourdon Wiersma test students' attention is concentrated on what is being done, and stop trying to do several things simultaneously ignoring the various factors that do not favor, for example, the noise from the atmosphere outside the classroom, the number of tasks from other academic subjects which must be resolved, and others. Their minds remain concentrated on what is happening at the moment, they are doing today is working on a questionnaire *Bourdon Wiersma Test* and not think about what had happened either failure which can lead to depression or feeling useless and success that can lead to a sense of fun that excessive and taste arrogant, and not thinking about what's coming, which made them anxious, fear and stress, what matters is currently done with the best. It can be shown from the average value listed in Table 2 that the value of the average speed of 8.9 seconds treatment groups included in good criteria, while the control group 11, 4 seconds is included in the criteria of sufficient treatment group means faster and better in completing the questionnaire *Bourdon Wiersma Test* compared with the control group. Judging from the treatment group had a mean accuracy of 2.4 included in the criteria good enough and the control group had a mean of 5.7 is included in sufficient criteria, which means a more accurately treatment groups, fewer mistakes in cross out or does not answer the

questionnaire *Bourdon Wiersma Test* when compared with the control group. Judging from the mean value constancy treatment group had a mean of 1.4 included in good criteria and a control group that has a mean of 5.7 is included in sufficient criteria, which means the treatment group had a better constancy in work on the problems when compared with the control group.

All of these conditions can be achieved if the student is able to control and calm the mind and emotions. So according to researchers meditation is not just sitting still for practice concentration, but more important is the control of our thoughts and emotions in all situations. That is meditation just as the means to achieve a meditative (tranquility). This is in accordance with the opinion of Krishna (2003) that meditation is a way of life which is the basis of life for a person to become meditative. "When it has reached the level of meditative, we like having the on off button in terms of emotion". In this case for example when working on a questionnaire *Student Test Bourdon Wiersma*, Students who do meditation will be able to control his emotions so much faster in the work on the problems, more constant and more accurate.

Based on Table 3 obtained the data that the p-value of 0.000 for the speed, p 0.006 for accuracy, p 0.000 for constancy. Thus the p-value is smaller than the value of α (5%) or 0.05 means there studying the effects of meditation with concentration. According to researcher Sara Lazar of *Psychiatric Neuroimaging Research Program at Massachusetts General Hospital* of the results of research mentioned that the practice of meditation within a period of 8 weeks was found to alter brain structure, based on analysis of *Magnetic Resonance Imaging* (MRI) find the density of the substance of gray (*gray matter*) increased in the hippocampus is important for learning, memory, awareness, compassion and introspection, as well as a decrease in the density of the substance of gray in the amygdala, which plays an important role in

anxiety and stress (Sukmono 2011). Results of research at *North Western University* also proved that when someone is learning something, the brain "reward" themselves by producing endorphins. In other words, learning and memory, will be easier to do if there are quite a lot of endorphins in our brain, a condition that can occur when the brain is at the right waves (Mustajib, 2010)

In line with the opinion attributed to the results of research, learning concentration of students in the treatment group is better when compared with the control group it can be caused because by giving the meditation practice, although only 28 days using music *alpha meditation*, when doing questionnaire Bourdon

Wiersma Test, students can organize brain waves in the alpha state, because according Sukmono (2011) meditation is one way to regulate brain wave patterns, meditation can make our brain waves to the alpha state. In this study, researchers did not see directly how a brain wave conditions while working on a questionnaire Students Bourdon

Wiersma Test. Researchers only observe the effects of the alpha brain waves. If the student is able to make his brain waves in a state of alfa, the endorphins will be released. According Rodenbeck (2007) one of the benefits of meditation is to produce endorphins, further Sukmono (2011) explains that the hormone endorphin will be issued when our brainwaves in the alpha state. Mustajib (2010) also mentions that endorphin substances can also improve concentration and memory. That is why at the moment working on questionnaires Bourdon Wiersma test Students who are already doing the meditation exercise can focus or concentrate on what he was doing compared to students who do not do meditation for 28 days, in addition to the student who has been doing the meditation exercise may not experience anxiety and stress and have fun juice that makes them relax.

The effects of HB level on learning concentrations

Physical health, healthy condition and fit for example no deficiencies of HB levels (anemia) affect the concentration of one's learning. HB carries oxygen to all body tissues, then decreasing levels of HB will result in decreased oxygen levels, including to the brain. Oxygen deficiency is certainly going to affect the amount of energy produced (energy being a little), and the need for energy to be able to concentrate decreased. According Astawan (2008) that one of the effects of anemia is that it can decrease the ability of to concentrate

Based on the table 1 in getting the data that 50 respondents (89.3%) of the 56 respondents had higher levels of normal HB and 6 (10.7%) had levels above normal HB. Based on Table 4 obtained the data that different from the mean concentration of learning, to speed and constancy mean did not differ significantly better in the group with high levels of HB normal or groups that had higher levels of HB above normal, but for accuracy mean significantly different, because it more closely to the group which has HB levels above normal with a mean value of 1.3 is smaller when compared with the group who had higher levels of normal HB. Judging from the p value of 0.933 for the speed, p 0.126 for accuracy and p 0.670 for constancy thus the p-value is bigger than the value of α (5%) or 0.05 means that there is no effect HB levels on the learning concentration

Associated with the above theory, basically the result of this study are consistent with above theory even though the levels of HB proved not to have significant effect with the learning concentrations, but still supports the theory above, it is in because the results of the study are not found respondents who had higher levels of HB below normal (<11 g / dL) were included in the criteria of anemia that can decrease the learning concentrations. So since this study only groups with higher levels of normal and

above normal HB and did not have HB respondents who had levels below the normal functioning as a comparison that can not prove that the HB levels has an effect on learning concentrations.

In addition to not finding respondents who had higher levels of HB below normal, to support research that the levels of HB does not affect the learning concentrations, also the discovery of the mean levels of HB were similar between the treatment group and the control group, this can be evidenced in Table 1 that the level of HB between the treatment groups and the control group had the same mean is 15.9 g / dL, whereas the concentration of learning both the speed, accuracy and constancy has a mean and maximum score better in the treatment group compared with the control group. If levels of HB proved either directly with the learning concentration, this is because there are other factors that lead to increased learning concentration and in this study is meditation. meaning that although between the treatment group and the control group had a mean level of HB same, but because of the treatment group was given meditation exercise for 28 days so that an increase of the concentration of learning

CONCLUSIONS

- a. There is a statistically significant effect meditation on the learning concentration, Viewed from a p-value of 0.000 for speed, for accuracy` p 0.006 and p 0.000 for constancy
- b. There is statistically significant no effect HB levels on the learning concentration Viewed from a p-value of 0.933 for the speed, p 0.126 for accuracy and p 0.670 for the constancy, this is because in this study was not found samples had levels HB less than normal

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