

THE STUDY OF HEART RATE VARIABILITY (HRV) BIOFEEDBACK THROUGH ZIKIR (ISLAMIC RECITATION) OF HIGH SCHOOL STUDENTS

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ABSTRACT

Zikir has been known to have a direct impact on the individual. Zikir is able to help individuals make behavioral changes. Zikir is known to have an impact on the mind, emotions and behavior. An investigation was conducted to identify the extent implemented zikir able to help individuals make changes themselves. Clinical studies carried out by taking 10 respondents among secondary school students who were involved in the disciplinary problems. Zikir intervention enables us to make changes ourselves using the technique of "Heart Rate Variability" (HRV). Students were given technical chanting slowly, loudly, and several techniques of zikir such as tahlil, istigfar and salawat. Conversion EmWave had recorded using a look at how the students were able to make changes themselves. The study found that students who successfully completed the zikir training ability to make changes themselves. Students had successfully made a change to the change score "HRV Coherence" of the VLF spectrum of LF and HF spectrum conditions. This technique can be used in schools to improve the effectiveness of prevention of disciplinary problems, therefore enabling education programs to be implemented.

KEYWORDS: Zikir; Biofeedback; Students

1.0 INTRODUCTION

Emotions have a very close relationship with behavior. Individuals who are able to control emotions will be able to better control the activity. Calm the mind, emotions under control will lead to more organized activities and controlled behavior (Appelhans & Leucken, 2006). A study conducted shows that people who are able to control emotions have better athletic performance (Harmond, 2007). The same holds if associated with students. Individuals who are able to control emotions will be able to control their behavior better and of beneficial ways. On

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the other hand, individuals who are unable to control emotions will be difficult to perform activities well. They are easily worried, restless and angry while doing activities. This provokes them to create disciplinary problems at school. Generally experimental work on psychophysiology stimulus variation and emotional, cognitive or behavioral response changes depending on the use of biofeedback approach (Drevets, 2001; Bust et al., 2000).

Heart Rate Variability (HRV) is termed as a joint time/frequency study of the beat-to-beat responses in the heart rate (Appelhans & Luecken, 2006). HRV biofeedback aims to control the oscillation variability in heart rate (Lehrer et al., 2003). Task (2011) stated that there are three related types of spectrum: the VLF (very low frequency) frequency less than 0:03 Hz, LF (low frequency), with a frequency range of 0:03 and 0.15 Hz, and HF (high frequency) between 0.18 and frequency range 0.4 Hz (Task, 1996). HRV biofeedback showed potential in increasing performance and he also stated many employees perform their cognitive function below the level of the actual cognitive ability caused by fatigue, work stress and boredom (Sutarto & Nubli, 2008). Studies have revealed that higher HRV associated with creativity, psychological flexibility and capacity to adapt faster response in cognitive, affective and physiological emphasis (Lagos et al., 2008). Whereas low HRV is associated with anxiety, depression and different cardiovascular. Health factors can also cause an increase in certain heart rhythms, including emotional, anxious thinking, breathing, pressure in the arteries and other behavioral and physiological changes (Lagos et al., 2008).

Zikir (Islamic Recitation) as part of Islamic tradition, may also be considered as an aided tool for attaining both psychophysiological coherence (McCraty, 2002). Zikir is able to calm the mind and plays a role in determining a person's character. Zikir is the best traditions of worship and most pleasing to Allah, the lightest and most easily done by not having certain conditions and rules. It can be done at any time, any place and at any state (Saleh, 2010). Zikir has psychological and spiritual benefits. Psychologically, it gives a sense of spiritual comfort and it gives a sense of being closer to God (Khan, 2000). When a person is more likely to do good deeds such as reciting zikir and remembering Allah, Allah will spare him from committing sins therefore helps forming a good personality in that individual.

Recent researches (Sutarto et al., 2010) have publicized the consequence of HRV biofeedback to the development of some cognitive functions in both simulated and real industrial operators. Patients with coronary

heart disease (CHD) have a psychological stress exhibit decreased vagal control of heart rate (HR), as measured by spectral analysis of HR variability (HRV) (Nolan et al., 2005). Student shows the best performance which increases academic achievement after doing zikir intervention (Rozali & Nubli, 2013)

2.0 EXPERIMENTAL PROGRAM

The method in this study includes a description of participants, and procedure. The purpose of this study is to measure the coherence in psychophysiological that is “a state of sustained positive emotion, a high degree of mental and emotional stability, constructive integration of the cognitive and emotional systems and increased synchronization and harmony between cognitive, emotional and physiological systems” (McCraty, 2001)

2.1 Participants

The sampling is done by selecting students from four secondary schools. These students who have been identified are those who have low academic achievements and was always being involved in the violation of discipline in schools. A total of 10 students was selected as a sample and they are going through a rehabilitation programme behavior using chanting and biofeedback methods.

2.2 Procedures

The intervention training group received six sessions of biofeedback training chanting which involves a single week session. These five sessions were selected based on previous studies, which can improve performance (Sutarto et al., 2008). Each session lasted at least 15 minutes, a total lack of the length of each session or inadequate training might be considered as error in methods and concepts in the study of biofeedback (Shellenberger & Green, 1987)

The students were encouraged to relax and five on a chair calmly. After properly connecting the ear sensor, a monitor viewing the heart rhythm pattern either VLF, LF and HF. Their heartbeat rate would be measured and recorded using the Wave desktop Software Kit devices to detect their emotion through their heart rate rhythm pattern.

In the first procedure, the baseline was fixed at three minutes. While they are in a relax situation, which is in a normal situation, their heart rate was recorded for 3 minutes and stopped. Later, they were asked

to recite Tahlil "Laila ha illallah" with tongue for 3 minutes. Continue with that procedure, they were asked to recite Istigfar "Astagfirullah hal azim" with tongue for 3 minutes. Continue with that procedure, they were asked to recite Salawat "Allah hum masal li ala muhammad" with tongue for 3 minutes.

Finally, the students were asked to recite zikir "Laila ha illallah" in their heart for 3 minutes. At this stage, data were collected to measure the average HRV range and coherence ratio percentages. In the exercise, students were expected to achieve low frequency (LF) coherence.

3.0 RESULT AND DISCUSSION

The result presents the demographic profile of participants, average coherence rate and the type of effective zikir. These are explained below.

3.1 Demographic Profile of Participants

The demographic profile of participants displays students' gender, age and race. The participants were of 10 male students, age 16 years old.

3.2 Average Coherence Rate

The aim was to assess the physiological state of coherence, failing which students can change emotional coherence reading will increase. Figure 1 shows the individual HRV before and after training, and accompanied by the teaching chanting method. Coherence after zikir is higher than normal (baseline). According to the average coherence rate, the coherence of HRV biofeedback from baseline to zikir recitation effect was so effective because most of the cases coherence was increasing. If compared between the types of zikir, most effective zikir is sirri zikir followed by salawat, tahlil and istigfar.

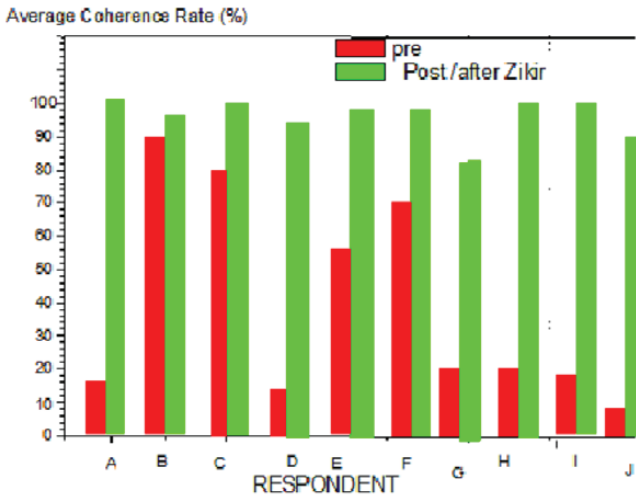


Figure. 1. HRV responses for individual: pre and post

Table 1. Mean Values of Average Coherence Rate at Pre and Post

Mesures	Mean values	Standard Deviation
HRV		
Pre	34.1	37.1
Post	86.2	30.2

Table 2. Comparison The Type of Effective Zikir

Type of Effective Zikir	Number	%
1. Tahlil "Laila ha illallah	2	20%
2. Istigfar "Astagfirullah hal azim	1	10%
3. Salawat "Allah hum masal li ala muhammad"	2	20%
4. Zikir Sirri ,Laila ha illallah in heart	5	50%

Based on Table 1 shows a comparison of the mean of the coherence is only 34.1% pre and post the chanting rose to 86.2% with a standard deviation was 37.1 pre and post is 30.2. The observations show that there is a change in HRV readings in response to the changes in students' psychophysiology. HRV detects signals after undergoing training on emotional remembrance. When students start to change to more emotional calm the LF (low frequency) also increases. When a coherent sample is in a state of calm pulse wave is very smooth then LF will increase. Otherwise, when individuals in a state of emotional change pulse wave- variable HF will increase.

4.0 CONCLUSION

Overall, a study found that a combination of modules biofeedback chanting and breathing exercises can be used to help students at risk for making behavioral changes. This process can be implemented in schools as strengthening program performance and student behavior. This program introduced a new dimension in the recovery behavior in turn helps reduce the rate of student participation in a bad symptom. Processes implemented should be strengthened and expanded to a number of students with better skills that increase program effectiveness prolonged. Parents of students involved in this process should also be informed that their child has turned into a better student. This allows parents to accept their children's behavior change and support the changes made. Duration of behavioral changes that can be made by students is highly dependent on the extent to which force themselves to maintain the new attitudes and emotions have learned through this method. The school should take positive steps to enable behavior change among at disciplinary problem students can last longer and be able to shape students who can build a better future.

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