

The Effects of Chinabunchorn Listening on Brain Wave and Stress Reduction

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Abstract

The purposes of this research were to study the efficacy of listening to Chinabunchorn chanting on brain waves, to compare stress levels of Buddhists before and after listening to Chinabunchorn chanting, and to compare stress levels of Buddhists who listened with those who did not listen to the Chinabunchorn chanting. An experimental study was employed. The samples were male and female volunteers aged between 20 – 30 years old. They were divided into experimental and control groups with 30 people for each. The gathered data was analyzed by descriptive statistics comprising frequency, percentage, mean and standard deviation, and the paired-sample t-test at the significance level of 0.05 and the reliability of 95%. The study showed that stress levels of the target group before and after listening to Chinabunchorn chanting were different at the statistical significance level of 0.05. Measuring brain waves before and after listening to Chinabunchorn chanting when the samples had open eyes, delta waves and theta waves impacted the efficacy of the brain waves at the statistical significance level of 0.05. With eyes open, theta waves impacted the brain waves at the statistical significance level of 0.05. Similarly, while comparing open and closed eyes when listening to the chanting, delta waves and alpha waves impacted the brain waves at the statistical significance level of 0.05. The study also found that stress levels of the control group before and after looking at Buddha images were not different. When measuring brain waves before and after looking at Buddha images, delta waves impacted the efficacy of the brain waves at the statistical significance level of 0.05 while eyes were open, and showed no difference while eyes were closed. For alpha waves, it impacted brain waves while looking at Buddha images with open eyes at the statistical significance level of 0.05.

Keywords: Chinabunchorn/ brain wave / stress

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1. Introduction

The trends of consumerism and economic growth in recent society have affected people's living especially on physical and mental health. Under the consumerism trend, the daily lives of people were touched up and contended which were the variables in living. All of them caused health problems and diseases of the most people. They were from food and degraded environment which caused many pollutions. The importance was, it was the result of living stress. Although science and technology were advance; they may called the long-living equipment for people, the tendency of disease was increase. For example, stress disorder, diabetes, high blood pressure, heart disease and cancer. The modern medicine was more emphasize on mind. There were many researches showed that the mind affected on health; it related the Buddhism that, if the mind is strong the constitution is strong also.

Nowadays the holistic health care was used to treat patients and sick people, it was called Holistic Medicine. The holistic medicine cured patients did not only as patient, but took care in every dimension of human; body, mind, society and family. It caused learning to improve the potential of patients their own. The holistic medicine believed that the most important factor which could cure disease was patient, not doctor, because the doctor would focus on physical treatment techniques. The disease was not come from one part, but the whole system. The whole system would be cured when the body, mind, and society are changed to be better equilibrium. Therefore, the holistic medicine acted that giving advices by doctors was the main responsibility more than treatment. The holistic medicine was famous in many countries. It was like the health and cure philosophies which considered all composition of human; body, mind and soul. Moreover it emphasized the patients as the part of the treatment, or they could cure to get rid of that symptom by themselves. They changed the role of health behavior from 'reactive' to 'active'. Sometimes the holistic medicine was called Alternative Medicine. It was not limited in one treatment, but included diagnosis, treatment, and chanting; minds developing activity.

Many religions prayed; Brahmanism, Hinduism, Buddhism, Christianity and Islam. Human beings have been prayed for thousand years. Chanting made our mind relieved and concentrated. Apart from praying, we listened to sermon or learning doctrines. However, the health scientists found that these activities affected on health. In Buddhism, chanting was the action to offering to Buddha and virtue from the holy words which were formulated by the Buddha, especially for the people who knew the meaning or understood the dharma. For who usually practiced, listened, chanted, meditated or prayed, they were delighted. Chanting led to the primary concentration. The famous Buddhism's prayers were Buddha's grace, Itipiso, Pahung Mahaga, Chinabunchorn, and Pochangkaparitra. In this research, the researcher chose Chinabunchorn prayer because it invited 28 saints to chanters. It protected and shielded all body areas. Chanters believed that could protect them from any dangers, and cured diseases.

2. Research Objectives

- 2.1 To study the change of brain wave from listening to Chinabunchorn chanting.
- 2.2 To compare the stress level of Buddhists before and after listening to Chinabunchorn chanting.
- 2.3 To compare the stress level of Buddhists who listen and not listen to Chinabunchorn chanting.

3. Method of Conducting the Study

3.1 Subjects

Male and female volunteers aged 20-60 years who were healthy, with no history of illness, no neurological diseases, cardiovascular disease and no history of undergoing brain surgery, no drugs or hormones consumption with effect on brain measurement. Acknowledgement of information and consent to participation in the research was also prepared.

3.2 Instruments

The questionnaire consisted of 2 parts. Part I was the demographic data and personal information including gender, age and educational level. Part II was the Electroencephalogram (EEG) and the Thai Stress Test questionnaire to measure stress level of all participants during their brain scanning. All subjects were asks to rate their stress level for each particular event ranking from 0 = no stress at all to 4 = severely stressful respectively.

3.3 Methods

The samples were 30 subjects divided into 2 groups; the target group who listened to the Chinabunchorn chanting followed by a mental chanting and the control group who did not similar to the previous one except seeing the Buddha picture and did not have a mental chanting. The Thai Stress Test was applied to all subjects by rating their subjective felling during their brain scanning.

4. Results

4.1 Stress Indicator before and after listening to Chinabunchornchanting

Table 1: Stress indicator in the target group compared between before and after listening to the Chinabunchornchanting followed by mental chanting

Stress Indicator	<i>n</i>	\bar{X}	SD	<i>t</i>	<i>p</i>
Positive scale : before listening	15	25.67	6.26	-2.63	0.02
Positive scale : after listening	15	28.27	7.29		
Negative scale : before listening	15	7.20	4.96	4.23	<0.001
Negative scale : after listening	15	4.80	4.57		

The target group who listened to Chinabunchorn chanting mostly had a little to normal stress levels before listened to Chinabunchorn. After listened to the prayer, the level of stress was excellent to a little in mental health. The level of stress which was compared before and after listened to Chinabunchorn found different positive feeling in a statistical significance level of 0.05. Also it was found the different negative feeling in a statistical significance level of 0.05 (see Table 1).

Table 2: Stress indicator in the control group compared between before and after listening to the Chinabunchorn chanting followed by mental chanting

Stress Indicator	<i>N</i>	\bar{X}	SD	<i>t</i>	<i>p</i>
Positive scale : before Listening	15	23.40	8.20	-1.46	0.17
Positive scale : After Listening	15	24.60	8.42		
Negative scale : before Listening	15	7.40	2.95	1.26	0.23
Negative scale : After Listening	15	6.40	3.87		

The control group who did not listen to Chinabunchorn chanting found that, most of them had the same level of stress after looked at the Buddha picture. Before looking, they had a little to normal stress levels. After looking, they also had a little to normal stress levels. By comparing the stress level before and after looked at the Buddha picture, there was no difference in positive feeling in a statistical significance level of 0.05. Also there was no difference in negative feeling in a statistical significance level of 0.05 (see Table 2).

4.2 The analysis of EEG while opened eyes; before and after listened to Chinabunchorn chanting

The group who listened to Chinabunchornchanting (target group) found that,

1. The delta wave. There was change of EEG 0.05 ($t(39) = 10.34$; $p < 0.05$) in statistical significance. The average of opening eyes before listened to Chinabunchorn was 7.12 (± 0.34) micro volts in frontal lobe. The average of opening eyes while listened to Chinabunchorn was 8.49 (± 0.66) micro volts in the same area; frontal lobe.

2. The theta wave. There was change of EEG 0.05 ($t(39) = 9.46$; $p < 0.05$) in statistical significance. The average of opening eyes before listened to Chinabunchorn was 5.12 (± 0.21)

micro volts in temporal lobe. The average of opening eyes after listened to Chinabunchorn was 6.44 (± 0.43) micro volts in the same area; temporal lobe.

The group who did not listen to Chinabunchorn chanting (control group) found that,

1. The delta wave. There was change of EEG 0.05 ($t(39) = 9.14; p < 0.05$) in statistical significance. The average of opening eyes before looked at the Buddha picture was 5.23 (± 0.83) micro volts in frontal lobe. The average of opening eyes after looked at the Buddha picture was 7.91 (± 0.61) micro volts in the same area; frontal lobe.

4.3 The analysis of EEG while closing eyes; before and after listened to Chinabunchornchanting.

The group who listened to Chinabunchornchanting (target group) found that,

1. The theta wave. There was change of EEG in 0.05 ($t(39) = 4.43; p < 0.05$) in statistical significance. The average of opening eyes before listened to Chinabunchorn was 8.75 (± 1.39) micro volts in frontal lobe. The average of closing eye after listened to Chinabunchorn was 10.27 (± 1.01) micro volts in the same area; frontal lobe.

2. The alpha wave. There was not change in EEG in 0.05 ($t(39) = 4.76; p < 0.05$) in statistical significance. The average of opening eyes before listened to Chinabunchorn was 11.64 (± 0.91) micro volts in occipital lobe. The average of closing eyes after listened to Chinabunchorn was 13.9 (± 0.17) micro volts in the same area; occipital lobe.

The analysis of the second group (control group) found that,

1. The alpha wave. There was change of EEG 0.05 ($t(39) = 2.37; p < 0.05$) in statistical significance. The average of opening eyes before looked at the Buddha picture was 19.16 (± 0.91) micro volts in occipital lobe. The average of closing eyes after looked at the Buddha picture was 11.27 (± 0.15) micro volts in the same area; occipital lobe.

4.4 The analysis of EEG while doing positive test; before and after listened to Chinabunchornchanting.

The group who listened to Chinabunchornchanting (target group) found that,

1. The delta wave. There was change of EEG 0.05 ($t(29) = 2.54; p < 0.05$) in statistical significance. The average while doing positive test before listened to Chinabunchorn was 5.79 (± 0.15) micro volts in frontal lobe. The average while doing positive test after listened to Chinabunchorn was 6.95 (± 0.19) in the same area; frontal lobe.

2. The alpha wave. There was change of EEG 0.05 ($t(29) = 3.27; p < 0.05$) in statistical significance. The average while doing positive test before listened to Chinabunchorn was 11.34 (± 0.43) micro volts in occipital lobe. The average while doing positive test after listened to Chinabunchorn was 13.59 (± 0.53) micro volts in the same area; occipital lobe.

The group who did not listened to Chinabunchornchanting (control group) found that,

1. The delta wave. There was change of EEG 0.05 ($t(29) = 1.21; p < 0.05$) in statistical significance. The average while doing positive test before looked at the Buddha picture was 3.37 (± 0.25) micro volts in frontal lobe. The average while doing positive test after looked at the Buddha picture was 5.82 (± 0.93) micro volts in the same area; frontal lobe.

2. The alpha wave. There was change of EEG in alpha wave 0.05 ($t(29) = 2.21; p < 0.05$) in statistical significance. The average while doing positive test before looked at the Buddha picture was 9.73 (± 0.13) micro volts in occipital lobe. The average while doing positive test after looked at the Buddha picture was 10.82 (± 0.29) micro volts in the same area; occipital lobe.

4.5 The analysis of EEG while doing negative test; before and after listened to Chinabunchornchanting.

The group who listened to Chinabunchornchanting (target group) found that,

1. The theta wave. There was change of EEG 0.05 ($t(29) = 2.25; p < 0.05$) in statistical significance. The average while doing negative test before listened to Chinabunchorn was 3.12

(± 0.22) micro volts in frontal lobe. The average while doing negative test after listened to Chinabunchorn was 4.18 (± 0.31) micro volts in the same area; frontal lobe.

2. The alpha wave. There was change of EEG 0.05 ($t(39) = 2.29$; $p < 0.05$) in statistical significance. The average while doing negative test before listened to Chinabunchorn was 11.32 (± 1.24) micro volts in occipital lobe. The average while doing negative test after listened to Chinabunchorn was 13.19 (± 1.16) micro volts in the same area; occipital lobe.

The group who did not listen to Chinabunchornchanting (control group) found that,

1. The alpha wave. There was change of electrical wave 0.05 ($t(39) = 1.32$; $p < 0.05$) in statistical significance. The average while doing negative test before looked at the Buddha picture was 9.13 (± 0.72) micro volts in occipital lobe. The average while doing negative test after looked at the Buddha picture was 12.95 (± 0.63) micro volts in the same area; occipital lobe.

4.6 The average of EEG while opening eyes and closing eyes while listened to Chinabunchornchanting.

The group who listened to Chinabunchornchanting (target group) found that,

1. The delta wave. There was change of EEG 0.05 ($t(29) = 8.12$; $p < 0.05$) in statistical significance. The average of opening eyes while listened to Chinabunchorn was 8.33 (± 0.16) in frontal lobe. The average of closing eyes while listened to Chinabunchorn was 9.89 (± 0.12) micro volts in the same area; frontal lobe.

The group who did not listen to Chinabunchornchanting (control group) found that,

1. The alpha wave. There was change of EEG 0.05 ($t(29) = 2.07$; $p < 0.05$) in statistical significance. The average of opening eyes and did not listen to Chinabunchorn was 9.71 (± 0.31) micro volts in occipital lobe. The average of closing eyes and did not listen to Chinabunchorn was 11.25 (± 0.95) micro volts in the same area; occipital lobe.

5. Discussion

The group who listened to Chinabunchorn chanting has positive feeling and stress differently; before and after chanting, 0.05 in significant statistics. The negative stress before and after chanting was different 0.05 in statistical significance. The time of doing positive stress test; before and after chanting, was different 0.05 in statistical significance. The time of doing negative stress test; before and after chanting, was different 0.05 in statistical significance. All was conform to Ar-ree Nuibandan's (2009) research. She did the stress comparison between chanting group and not-chanting group of nursing students of Prince of Songkla University. She found that chanting could decrease nursing students' stress. Moreover it was conform to Titaya Puthakamin's (2010) research which studied about the chanting treatment affected on stress and soul happiness of breast cancer patients who were in treated stage at Pathumruk unit; Srinagarind Hospital. The result shown that the average of anxiety after experiment was decrease in statistical significance ($p = 0.00$, 95% CI = 5.14-11.46). The average point of soul happiness after experiment was increase in statistical significance [$p = 0.4$, 95% CI = (-4.02) – (0.18)]. The EEG; before and after listened to the prayer, found that the delta wave and theta wave were change 0.05 in statistical significance while opened eyes. When the eyes were closed, the theta wave was change 0.05 in statistical significance. While doing the positive test, the delta wave and alpha wave were change of EEG 0.05 in statistical significance. While doing the negative test, the theta wave and alpha wave were change of EEG 0.05 in statistical significance. When opened and closed eyes while listened to the prayer, the delta wave and alpha wave were change 0.05 in statistical significance which was conform to Kitsarun Junpo's (2013) research. That research studied about the Buddhism chanting and mindfulness on breathing meditation which were effect on stress of Chulalongkorn University's students. The result shown that, the group which did chanting and the group which did the mindfulness on breathing meditation had the different average of stress; before and after experiment, was 0.05 in statistical significance. The average of alpha and beta wave in both two groups; before and during the experiment, on 5, 10, 15, 20, 25, 30 minutes and after the experiment were different 0.05 in statistical significance. The alpha wave in chanting

group was increase since 5 – 10 minutes. The alpha wave in meditation group was increase since 0 – 5 minutes.

The group who did not listen to Chinabunchornchanting found that, the positive and negative feeling; before and after chanting, was not different in stress. The doing of positive test; before and after looked at the Buddha picture, was different 0.05 in statistical significance. The time of doing the negative test; before and after chanting, was different 0.05 in statistical significance which was conform to Ar-ree Nuibandan's (2009) research. She did the stress comparison between chanting group and non-chanting group of nursing students in Prince of Songkla University. The found that, chanting could decrease stress of nursing students. The EEG; before and after listened to the prayer, shown that, while opened eyes the delta wave was change 0.05 in statistical significance. When closed eyes, there was no change of EEG. While doing positive test, the delta and alpha wave were change 0.05 in statistical significance. While doing negative test, the alpha wave was change 0.05 in statistical significance. When opened eyes and closed eyes, the alpha wave was change 0.05 in statistical significance. which was conforming to Doufesh et, al (PubMed, 2012)? That research studied about measuring the alpha wave in frontal (F3, F4), central (C3, C4), and occipital (O1, O2). It was 10-20 international formats of 9 Muslim prayers, ages 20-29. They pray Dhuha for prayer. The research measured EEG while opened eyes and rested, did prayer and chanted, and did prayer without chanted. (The Muslim prayer included 4 positions; stand, bow, prostrate and sit) The relational average of alpha wave in frontal (F3, F4), central (C3, C4), parietal (P3, P4) and occipital (O1, O2) between did prayer while chanted Dhuha and did prayer while did not chanted Dhuha were not different in significant statistics. However, the relational average of alpha wave was increase in prostrate while chanted Dhuha in parietal (P3, P4), and occipital (O1, O2) when compared with sitting rest.

6. Suggestion

The results of this study revealed that while opening and closing eyes before and after chanting, there was no change in beta brain wave and gamma brain wave. Listening to Chinabunchorn prayer can develop concentration and response to stress and can affect the changes in delta, theta, and alpha waves. Further study may investigate the effect of Chinabunchornchanting on change in brain wave by comparing other Buddhism prayers and mediation to produce different results of study.

7. Conclusion

The study also found that stress levels of the control group before and after looking at Buddha images were not different. When measuring brain waves before and after looking at Buddha images, delta waves impacted the efficacy of the brain waves while eyes were open, and showed no difference while eyes were closed. For alpha waves, it impacted brain waves while looking at Buddha images with open eyes.

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