The Significant Effect of Wudu’ and Zikr in the Controlling of Emotional Pressure Using Biofeedback Emwave Technique

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Abstract—Wudu’ (Ablution) and Zikr are amongst some of the spiritual tools which may help an individual control his mind, emotion and attitude. These tools are deemed to be able to deliver a positive impact on an individual’s psychophysiology. The main objective of this research is to determine the effects of Wudu’ (Ablution) and Zikr therapy using the biofeedback emWave application and technology. For this research, 13 students were selected as samples from the students’ representative body at the University Tenaga National, Malaysia. The DASS (Depression Anxiety Stress Scale) questionnaire was used to help with the assessment and measurement of each student’s ability in controlling his or her emotions before and after the therapies. The biofeedback emWave technology was utilized to monitor the student’s psychophysiology level. In addition, the data obtained from the Heart rate variability (HRV) test have also been used to affirm that Wudu’ and Zikr had had significant impacts on the student’s success in controlling his or her emotional pressure.

Keywords—Biofeedback emWave, emotion, psychophysiology, wudu’, zikr.

I. INTRODUCTION

Emotion is closely related to an individual’s actions. As is widely known, with healthy emotion, a person’s actions may be better controlled. Previous researches have shown that individuals that are able to control their emotions are better at controlling their selves, actions and emotional pressure. On the other hand, those who are unable to control their emotions will experience problems in displaying their actions well; they may feel distressed, exhausted, suffer lack of confidence and easily lose their temper, all of which will indirectly affect their everyday activities.

By definition, biofeedback is a process which enables an individual to learn about how to change physiology activities to improve individual health and work. Hence, biofeedback is also the best instrument to measure physiological activities such as the brain wave, heart functions, breathing, muscle activities and skin temperature. This particular instrument is able to relay ‘feedback’ information in real-time to its users.

Biofeedback is also an alternative medical technique, whereby an individual will be able to learn to control his bodily functions such as rate of heart beat by simply using the mind. That is another biofeedback inherent objective is to help control variant rate of heart beats. In addition via biofeedback, it has been discovered that many workers are working below their actual cognitive levels due to exhaustion, depression, external pressure and boredom. Hence undoubtedly, biofeedback has also the capacity to improve individual work performances.

Wudu’ etymologically is derived from the Arabic word ‘Al-Wadhaa’ which means goodness and cleanliness. Meanwhile from the syara’ (rulings) view, it means that the applications of clean water to pre-determined body parts (that is the washing of face, two hands until the elbows, part of the head and the two feet), preceded with the correct initial intention (niyyah) [1].

Zikr in etymology is derived from the Arabic word ‘dzakara’ which means remembering, in terminology; it means a practice speech through recitations and remembrance of Allah. Zikr is the physical and mental activities that form acceleration from reflection, attitude, and behavior until the process of life that reminds us of God [2]. Zikr is able to calm the mind and plays a role in determining a person’s character. Zikr 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 any state [3]. Zikr gives a sense of spiritual benefits. Psychologically, it also gives a sense of spiritual comfort and sense of being closer to God [4].

II. PAST RESEARCHES

Researches on problems of stress, anxiety and depression have been carried out on a large scale amongst working professional’s [5]-[7]. The researches which were carried out on these emotional elements are important, as these elements may detrimentally affect the performances of an organization. In addition, it has been found that stress is one of the main contributors to health problems and weak performances of organizations [8]. Amongst the techniques popular in measuring and discovering the problem of stress is via biofeedback.

One of the researches, which were conducted among the female university students in Malaysia by Sutarto and Nubli [9], found that several improvements were made to the students’ cognitive test results (Stroop test, oral, memory and...
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students’ psychophysiology and emotions, especially to help

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performances and social and organizational activities.

Biofeedback technique is also used in the fields of military,
medical, sports and education. This technique is proven
effective in discovering mental problems such as ADHD,
PTSD, ADD and other physiological problems such as
Biofeedback is also used as a technique in intervening
problems such as poor work performances, lack of focus, poor
memory and traumatic distractions [12]. In the medical field,
biofeedback may be used to ascertain the changes and
activities of the brain via electro-encephalogram (EEG)
technology and changes in muscle structure may be
discovered by using the electromyography (EMG) technology.
Hence, changes in muscle tension may be measured clearly
and individuals who are in high levels of stress will exhibit a
relatively higher reading of EMG as compared to those who
are not experiencing stress.

The same technique is being used in photopletsmonography
(PPG) to measure the pulse beat, whereas galvanic skin
resistance (GSR) helps to measure the skin’s ability to become
a good current conduit or otherwise. All of these techniques
may measure the extent of how an individual influence the
sympathetic nervous system (SNS) and the parasympathetic
system (PNS). The imbalances between the two systems are
the effect of changes of individuals’ actions and perceptions.
The biofeedback technique will be able to detect the changes
and differences of the two systems within a very small scale
[13]. The changes in emotions, thinking and heart will affect
the changes on the PNS and SNS system, and hence, the
balance between the two systems may be measured clearly.

III. STATEMENT OF PROBLEM

Previous researches have shown that many students at the
higher education level are facing with a multitude of problems
and pressures. Uncontrolled emotional pressures will
adversely affect lives and personal day to day management,
which will in turn affect negatively their academic
performances and social and organizational activities.

Biofeedback is one of the techniques used by researchers in measuring the problems of
students’ psychophysiology and emotions, especially to help
increase the level of mind focus and ultimately better self-
control. For this research, it is hoped that some discoveries
will be made as to the extent of success in using this technique
with selected spiritual tools in helping students control their
emotions and help to reduce their worry and anxiety levels.
Finally, the success is also hoped to help the students produce
more positive outcomes in their academics and social and
organizational activities.

IV. RESEARCH OBJECTIVES

The objectives of this research are to:
1) Identify the current level of emotional distress of
UNITEN’s students.
2) Identify the extent and effectiveness of Wudu’ and Zikr
with biofeedback in tackling the emotional distress problems among UNITEN’s students.

V. IMPORTANCE OF RESEARCH

It is hoped that the findings of this research will bring great
benefit to many, especially students, educators and also
UNITEN’s student counsellors. These are among the
important goals of this research:
1) To establish the awareness among students on the
importance of identifying internal problems, especially
the ones relating to emotional control and its effect.
2) Facts and information garnered from this research may be
shared with the Students’ Affairs office and the
University’s Counselling Unit for the purpose of handling
various students’ problems.
3) This research is also hoped to enlighten the Higher
Education Ministry on how to overcome university
students’ problems via biofeedback emWave training.

VI. LIMITATIONS OF RESEARCH

This research was conducted on 13 students from the
UNITEN’s Students Representative Body, based at Sultan
Haji Ahmad Shah campus Muadzam Shah, Pahang. Mainly,
the venue of this research was the university’s counselling
room. The students were selected, as they were mostly holding
leadership posts and were deemed to be facing many difficult
situations and pressures around the campus. In addition, as
student leaders they carry heavy leadership responsibilities
and are expected to lead their fellow friends to the best paths
available. In the future, it is hoped that the sample selection
technique may be varied in accordance with different research
objectives.

VII. METHODOLOGY

The methodology chosen for this research is descriptive
analysis. Analyses were carried out on sample participants and
relevant procedures. The research was conducted with the
main aim of measuring differing levels of individuals’
emotional pressures. Whereby, the analyses were hoped to
reveal and affirm the positive effectiveness of Wudu’ and Zikr
with the aid of biofeedback emWave therapies to students’
emotions.
A. Participants/Sample

Samplings were conducted on students in the UNITEN’s Students Representative Body at the Muadzam Shah campus, Pahang. A total of 13 students were selected as a sample. They were individually placed in the counselling room and requested to answer the DASS (Depression Anxiety Stress Scale) questionnaire before the therapy sessions began. During the therapy sessions, the biofeedback emWave technique was used to identify and measure each student’s level of emotional pressure.

1. Research Instruments

Fig. 1 shows the instrument that has been used in this research, the emWave kit. The instrument’s function is to act as a controlling device which may help reduce emotional pressure, improve one’s internal balance, and increase the energy level and performance of the participant. The instrument is uncomplicated and is suitable to be used anywhere; it is made up of mainly of a USB drive which will be connected to the computer, and a pulse identifier, which can be temporarily clipped to the ear.

![Fig. 1 EmWave kit](image1)

Below are the steps of using the emWave PC:

i. To begin, the emWave PC application will need to be downloaded on the computer or laptop.

ii. After successful downloading, attach the connector to the ear sensory device to the USB module.

iii. Attach the USB Module to the USB port to the computer/laptop. Once connected, an announcement screen will appear on the screen of the computer/laptop.

iv. Clip the other end of the ear sensory device to the participant’s ear lobe (see Fig. 2).

v. Open the EmWave PC application on the computer/laptop, and a screen, as the one shown in Fig. 3, will appear.

![Fig. 2 Ear sensory device](image2)

vi. Fill in the respondent’s particulars (see Fig. 3), ensure that the ear sensory clip is securely clipped to the ear lobe, and then click the start button to begin and press the stop button to end the simulation.

![Fig. 3 Respondent particular](image3)

B. Procedures

In the test room, the student was required to answer the DASS questionnaire. Next, further tests were carried out for another three different sessions, with each lasting up to 5 minutes. During each session, the student was placed individually in the counselling room, which was prepared for the participant to undergo tests with the aid of biofeedback emWave therapy.

Prior the tests, students were advised to calm themselves and to set themselves comfortably. Next, the researcher will attach the ear sensory device to the student’s ear, the monitor will begin to display the heart beat readings. The average heart
rate and the coherence level ratio will be displayed during the sessions; thus, informing the researcher of the emotional condition of the student, and whether or not they were feeling pressured or distressed. The heart beat rate of the student will be measured and recorded using the emWave software desktop application, whereby their emotional level measurement may be identified via their heart beat patterns (see Table I). Each session is designed to assess and affirm the effectiveness of Wudu’ and Zikr in helping the student control his or her emotional pressure.

With the completion of session 1, each student was required to take up Wudu’ and the next biofeedback emWave session was then conducted. The students underwent the same requirement for the second session. For the third session, in addition to the Wudu’ requirement, the students were taught to orally recite Zikr while undergoing the session. The student was required to physically recite “La Ilaha Illallah” for 5 minutes during the session.

For this level, data would be collected to determine the average HRV and percentage of coherence ratio. Here, it is expected that the students would obtain a low value of coherence ratio, which meant that the students were already able to self-control themselves and their emotional pressure level too.

<table>
<thead>
<tr>
<th>Process Profile</th>
<th>Explanations</th>
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<tr>
<td>Coherence Ratio</td>
<td>- Measurement- divided into three levels of bar charts; Low (Red), Medium (Blue), High Coherence (Green).</td>
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<tr>
<td></td>
<td>- The best emotional score aim is at 100%, High Coherence Ration (Green)</td>
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<td></td>
<td>- Low score indicates that the student (sample) did not have a stable emotion and has difficulty in controlling self-emotion.</td>
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The research findings were assessed from the display, as shown in Fig. 4.

The results shown in Fig. 4 display the student’s demographic profile and the average of cohesion ratio. A further explanation is as below:

1. Students’ Demographic Profile

   Students’ demographic profile displays the students’ gender, age, race and the results of the Depression and Emotional scale tests. The student sample was comprised of male and female students. The majority of the students were aged 20-23 years old and were elected as a member of the Student Representative Body (see Table II).

2. Coherence Level Ratio

   The aim of this measure is to assess the student’s coherent physiological situation, whereby its readings may be changed/ increased, and at the same time, it is able to control the emotional level of the students. Table III-V display the individual HRV readings before and after the sessions.

   Table III shows the findings on the average heart rate value (HRV) and the coherence level ratio for the study involving 13 students from UNITEN’S Students Representative Body at the Muadzam Shah campus, Pahang. It shows the average heart rate readings and coherence level ratio of each of the students.
while undergoing the research’s tests. Average heart rate recorded a minimum of 63 and a maximum of 101. As for the coherence level ratio, the recorded minimum was 18 and the recorded maximum was 96. The medium coherence ratio was a minimum of 4% and a maximum of 44%. As for the high coherence level ratio, the minimum was 0% and the maximum was at 57%.

Table IV showed the readings of average HRV and coherence level ratio when the students were tested. The average heart rate was recorded at a minimum of 61 and a maximum of 98. As for the coherence level ratio, for low coherence level, the minimum ratio was at 12% and the maximum was at 97%. As for the medium coherence level ratio, the minimum was at 7% and the maximum was at 44%. As for high coherence level, the minimum recorded was at 0% and the maximum was at 58%.

Table V shows the readings of average HRV and coherence level ratio when the students were tested. The average heart rate recorded at a minimum of 61 and at a maximum of 107. For the coherence level ratio, the low level was recorded at a minimum of 2% and the maximum of 68%. For the medium coherence level ratio, the minimum was at 9% and the maximum was at 42%. As for the high coherence level ratio, the minimum was recorded at 8% and the maximum was at 72%. From this finding involving 13 student respondents, the green indicator recorded its highest at 72% and the second highest at 69%.

As a summary, it was found that the coherence level after undertaking Wudu’ had increased from session 1, while the coherence level after Zikr undertakings had increased from session 2 onwards. Referring to the average coherence level and the HRV Biofeedback from session 1 to session 2 (Wudu’), the findings affirm the earlier expectations about the spiritual tool’s effectiveness, whereby the results derived majorly show positive results after the sessions. Meanwhile, the coherence level and biofeedback HRV effects from session 2 (Wudu’) to session 3 (Zikr) had shown high effectiveness, as the majority of the findings showed improved test results.

VIII. CONCLUSION

In all, the emotional stability indicator has shown significant improvements after the undertakings of Wudu’ and Zikr practices. It may be seen via the three colour indicators,
whereby red represents low coherence level, blue for medium coherence level and green for high coherence level. It was found that when the subject had undertaken the Wudu’ and Zikr practice, the colour indicator was displayed as green, whereby the highest reading level was at 100%.

These findings have proven that Wudu’ and Zikr forms of therapy will deliver ideal positive effects on a sample subject’s emotional control. Observations have also shown that there were changes in average HRV readings and cohesion level ratio when the subjects were undergoing the tests. When the emotions of the sample students were calm and in control, the coherence level ration will become lower, which means that the students had already succeeded in controlling their emotional pressures.

As a conclusion, the findings from this research have proven that Wudu’ and Zikr therapies with the aid of biofeedback emWave have positively and significantly helped in improving the students’ emotional control. Observations have also shown that there were changes in average HRV readings and cohesion level ratio when the subjects were undergoing the tests. When the emotions of the sample students were calm and in control, the coherence level ratio will become lower, which means that the students had already succeeded in controlling their emotional pressures.

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