

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/356191819>

THE EFFECT OF PROGRESSIVE MUSCLE RELAXATION USING BIOFEEDBACK THERAPY ON ENGINEERING AND TECHNICAL STUDENTS

Chapter · November 2021

CITATIONS

0

READS

135

3 authors, including:



Abdul Rashid Abdul Aziz
USIM | Universiti Sains Islam Malaysia

119 PUBLICATIONS 312 CITATIONS

SEE PROFILE



Rezki PERDANI Sawai
USIM | Universiti Sains Islam Malaysia

63 PUBLICATIONS 119 CITATIONS

SEE PROFILE



SOCIAL SCIENCE AND TECHNOLOGY TOWARD PERFORMANCE IMPROVEMENT: RESEARCH CONCEPT, EFFECT AND AGENDA

Edited by

**NURUL FADLY HABIDIN
TUAN WAHEDA TUAN CHIK
UMMU AIMAN MUHAMAD**

**SOCIAL SCIENCE AND TECHNOLOGY TOWARD
PERFORMANCE IMPROVEMENT: RESEARCH
CONCEPT, EFFECT AND AGENDA**

Edited by:
Nurul Fadly Habidin
Tuan Waheda Tuan Chik
Ummu Aiman Muhamad

Publisher
Kaizentrenovation Sdn Bhd
Tanjung Malim
2021

Printing November 2021

Copyright © 2021 Nurul Fadly Habidin, Tuan Waheda Tuan Chik and Ummu Aiman Muhamad

Publisher : Kaizentrenovation Sdn Bhd (1167478-D)
Address : No A10-1 & A10-2, Gemilang Avenue, Jalan Pulai 1, Proton City, 35900
 Tanjung Malim, Perak
Email : info.kaizentrenovation@gmail.com
Website : <https://kaizentrenovationpublishing.com>
Facebook : Kaizentrenovation Bookstore
Telephone : 017-5716705

All rights reserved. No parts of this e-book may be reproduced, in any form or by any means without the written permission from the publisher and author

eISBN 9789671854693

CONTENT

	PAGE
PREFACE	
CRITICAL SUCCESS FACTORS OF SUSTAINABLE ENVIRONMENTAL MANAGEMENT ACCOUNTING IN THE MALAYSIAN MANUFACTURING INDUSTRY Nursyazwani Mohd Fuzi, Nurul Fadly Habidin, Sharon Yong Yee Ong, Sabrinah Adam, Ummu Aiman Muhamad, and Tuan Waheda Tuan Chik	1
FACTORS INFLUENCING WORK PERFORMANCE: A MALAYSIAN RETAIL INDUSTRY PERSPECTIVE Zarina Abdul Munir, Azmi Mat, Norliza Saiful Bahry, Nur Liana Kori and Ainunnazlee Md Ali	5
FAKE HALAL LOGO: AN OBSERVATION FROM THE PERSPECTIVE OF TORT OF DECEIT Nasihah Naimat and Elistina Abu Bakar	10
KNOWLEDGE TRANSFER PROJECT: HUMAN CAPITAL AND ACHIEVEMENT IN MALAYSIA Roslinah Mahmud, Khairul Hanim Pazim, Durrishah Idrus, Harcharanjit Singh and Roselina Ahmad Saufi	18
CONCEPTUAL FRAMEWORK IN DESIGNING CHILDPSYC-AR GAME: A TOOL TO OVERCOME STRESS AMONG CHILDREN Fadhlina Mohd Razali, Nor Azah Abd Aziz, Roznim Mohamad Rasli and Siti Aisyah Salim	25
USING DATA ENVELOPMENT ANALYSIS (DEA) TO OPTIMIZE EFFICIENCY OF ASEAN MRT Siti Sarah Januri, Norbaizura Kamaruddin, Faridah Zulkipli, Farah Mardhiyah Mohd Isa and Nor Fariah Nor Azman	33
EFFECT OF ENTREPRENEURIAL ORIENTATION ON BUSINESS PERFORMANCE: THE SMALL FIRMS PERSPECTIVE Haziri Husain	38
REVIEW ON DISTRIBUTION OF THE CONGREGATING FIREFLIES IN MALAYSIA Noor Fazeera Ahmad Fuzi and Azimah Abd Rahman	46

DYNAMIC APPROACH FOR TEXTBOOK DESIGN Fasehah Abdullah and Azhar Abd Jamil	50
CHANGING EDUCATION VIA ONLINE TEACHING AND LEARNING Wan Ismahanisa Ismail and, Rusnani Ab Latif	53
COMPLEX PROBLEM-SOLVING: ASSESSING THE FUTURE-READY CONCEPTUAL SKILLS TOWARDS THE EFFECTIVENESS OF GOOD GOVERNANCE PRACTICES Zawiyah Mahmood and Shathees Baskaran	56
ODL EXPERIENCE AMONG B40 AND NON-B40 STUDENTS IN PRE-DIPLOMA PROGRAMS: ASSESSING STUDENTS' PERCEPTION Siti Nurleena Abu Mansor, Mahanim Omar and Siti Mariam Saad	60
ANALYSIS OF COMMON ERRORS IN SOLVING CONVERGENCE OF POWER SERIES USING RATIO TEST Siti Nurleena Abu Mansor, Norshuhada Samsudin, and Fuziatul Norsyiha Ahmad Shukri	70
EFFICACY OF PLATELET RICH PLASMA IN THE TREATMENT OF DIABETIC FOOT ULCERS: A SYSTEMIC REVIEW Sarawanan Muniandy, Sharmanee Thiagarajah and Sheiladevi Sukumaran	78
THE GROWTH OF THE STYLE OF NEWS JOURNALISM INFLUENCES ETHICAL MANAGEMENT Afiqah Mior Kamarulbaid, Wan Anita Wan Abas, Siti Zobaidah Omar and Rosmiza Bidin	90
TODAY'S NEWS: REAL OR FAKE THE INFLUENCE OF NEWS WRITING ON THE LITERACY OF NEWS Afiqah Mior Kamarulbaid, Wan Anita Wan Abas, Siti Zobaidah Omar and Rosmiza Bidin	102
KNOWLEDGE, ATTITUDE AND PREVENTATIVE BEHAVIOUR REGARDING DENGUE FEVER AMONG YOUTH IN MALAYSIA Qarem Mohamed Mustafa, Husna Ahmad Kamal and Nurul Izzatul Amiera Rosli	113
THE DEVELOPMENT OF PARENT TEACHER ASSOCIATIONS MOBILE APPLICATION (PTA-MA) USING MINIMUM VIABLE PRODUCT (MVP) METHOD Norziana Yahya, Huda Zuhrah Ab Halim, Nur Fatihah Fauzi, Nur Izzati Khairudin, and Nurizatul Syarfinas Ahmad Bakhtiar	120

THE DEVELOPMENT OF EXPERT SYSTEM BASED ON EXPERT VIEW FOR QUALITY OF URBAN BUS SERVICES: A REVIEW	126
Shuhairy Norhisham, Muhammad Fadhlullah Abu Bakar, Nor Najwa Irina Mohd Azlan, Siti Nor Dania Ilyane Yasir Apandi and Nor Hazwani Nor Khalid	
METHODOLOGY ON EVALUATING BUS QUALITY SERVICES FOR CAPITAL CITIES IN NORTHERN PENINSULAR MALAYSIA	134
Shuhairy Norhisham, Nor Najwa Irina Mohd Azlan, Muhammad Fadhlullah Abu Bakar, Wan Ahmad Faiz Wan Mohd Fauzi and Nor Hazwani Nor Khalid	
METHODOLOGY ON DEVELOPING PROTOTYPE FOR NON-NEWTONIAN FLUID SPEED HUMP	141
Shuhairy Norhisham, Nor Najwa Irina Mohd Azlan, Muhammad Fadhlullah Abu Bakar, Dinesh Raja and Nor Hazwani Nor Khalid	
THE DEVELOPMENT OF MOOC COURSES FOR BUSINESS SUBJECTS: A CASE FROM A PRIVATE UNIVERSITY	149
Mahlindayu Tarmidi and Rusli Abdul Roni	
ENTREPRENEURIAL READINESS AMONG FEMALE STUDENTS AND TIME MANAGEMENT EFFECTIVENESS	158
Noorkartina Mohamad and Nor Ermawati Hussain	
BAMBOO FIBRE AND LIME AS ASBESTOS REPLACEMENT IN CEILING CONSTRUCTION	168
Hisyarita Abd Wahid and Normala Sulliaman	
THE DEVELOPMENT OF MUSIC GENRE CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORK	174
Ireen Munira Ibrahim, Ahmad Farid Najmuddin, Muhammad Abdullah, Siti Salihah Shaffie, Siti Rozanae Ismail, Anisah Abdul Rahman	
SELF-DETERMINATION THEORY AND COUNTERFEIT CONSUMPTION	181
Nurhidayah Rosely, Raja Nerina Raja Yusof and Haslinda Hashim	
STOCK MARKET REACTIONS ON SHARIAH INDICES FOLLOWING SUKUK ISSUANCES: 2008-FINANCIAL CRISIS	188
Syazwani Abd Rahim, Nurul Badriyah Ali and Syaimak Ismail	
TO BOOK A HOTEL ROOM: ROLE OF PHYSICAL SERVICESCAPE AND GUEST SATISFACTION	197
Sabrina Tarmudi and Norsiah Jaharuddin	

DETERMINANT OF MALAYSIAN MUSLIM CONSUMER INTENTION TOWARD TAKAFUL SCHEME FOR MENTAL HEALTH DISORDERS BY APPLYING A STRUCTURAL EQUATION MODELLING (SEM)-AMOS Khairil Faizal Khairi, Nur Hidayah Laili, Hisham Sabri and Aimi Fadzirul Kamarubahrin	203
THE DIFFICULTIES IN LEARNING PROGRAMMING IN THE ASPECT OF PROGRAMMING NATURE Rozita Kadar, Naemah Abdul Wahab, Jamal Othman and Maisurah Shamsuddin and Siti Balqis Mahlan	219
THE EFFECT OF PROGRESSIVE MUSCLE RELAXATION USING BIOFEEDBACK THERAPY ON ENGINEERING AND TECHNICAL STUDENTS Norizan Yusof, Abdul Rashid Abdul Aziz and Rezki Perdani Sawai	224

**THE EFFECT OF PROGRESSIVE MUSCLE RELAXATION USING
BIOFEEDBACK THERAPY ON ENGINEERING AND TECHNICAL STUDENTS**

Norizan Yusof, Abdul Rashid Abdul Aziz and Rezki Perdani Sawai

Abstract

The transition process facing by the students from secondary school to an engineering and technical institute of higher learning contributes to the challenges in emotional, social and academic aspects. At the same time, the changes in the environment of educational setting also gives a huge impact towards physiological status of the students. Students may expose to an increase in physiological arousal state which further affect student's psychology and performance in university. Until now, there is no special program or module in counselling session that can help in reducing the physiological arousal among engineering and technical student. Therefore, this study aims to develop and evaluate the effectiveness of progressive muscle relaxation with spirituality element using a biofeedback therapy in lowering physiological arousal of the students. This is an experimental quantitative study involving 54 technical students with disciplinary problems. DASS Questionnaire was used in determining the psychological state of the subjects. They are divided into two group which are treatment and control group in 4 session using progressive muscle relaxation with spirituality element for treatment. Another group is a control groups which received the progressive muscle relaxation without spirituality elements. Both groups are required to undergo biofeedback test before and after training. The result revealed that both progressive muscle relaxation with spirituality elements using biofeedback therapy is more effective in lowering psychological arousal as compared to the progressive muscle relaxation without spirituality elements. Indeed, the findings from this study provide a new effective technique that can be applied in counselling sessions as an empowerment to the existing counseling technique in helping the clients.

Keyword: Progressive Muscle Relaxation, Biofeedback, Spirituality, Psychological Arousal

Introduction

As a student, experiencing average levels of stress is rather common (Busari, 2014). Nevertheless, too much stress will lead to problems especially in school and social setting. Stress that are not well dealt with, might lead to the increase of the anxiety level and may causes depression symptoms (Dyson, 2006), affect sleep quality and fatigue (Kelly, 2001), muscle tension (Davey, Cheung, 2010), unhealthy eating habits, low physical activity, low self-esteem, suicidal tendencies (Hudd et al., 2000; Busari, 2014) and the declining of academic performance (Womble, 2003; Busari, 2014). High and long-lasting stress may affect academic achievements and have negative influence on students' life and increases substance abuse (Richlin-Klonsky, Hoe, 2003). Being stressful can increase the secretion of stress hormones such as epinephrine, glucagon, cortisol and cause hyperglycemia (Avianti, Desmaniarti, & Rumahorbo, 2016). The stress response is a closed feedback path between the muscles and the mind (Snyder & Linquist, 2002). There is no specific technique that have been developed to help students to have better coping strategies in handling the stress in one's inner self, so a technique or intervention that can help reduce the stress level among students are needed to be developed and applied among these problematic students.

The transition process to a technical institute of higher learning are identified as one of the processes that contributes to the challenge of the emotional, social and academic changes

(Biasi ,Mallia ,Menozzi & Patrizi ,2015). Even environmental changes to the technical and vocational school dropouts give an impact towards psychological level and become a major problem among students enrolled in secondary vocational education (Andersen,Rod & ErSboll ,2016). The common problems faced by students in technical line are difference with the problem that those faced by students in the academic line. The situation faced by the students is worsened by the presence of COVID-19 pandemic. Indeed, the vigorous spread of this virus in Malaysia and worldwide has had a huge impact on the country's education system. The impact can be seen when the medium of learning in Malaysia has changed drastically through online methods. The landscape of the educational system changed after the COVID-19 outbreak since end of year 2019. This scenario has created a new norm in Teaching and Learning (T&L) to students. In fact, discussions regarding online T&L became a hot issue among educators after the beginning of the new norm learning era during COVID-19. Debates on the pros and cons of T&L through face to face or online method continue even though it is no longer an option for students or educators.

Till now, there is no special program use as a module in counselling session to reduce the psychological arousal among engineering and technical student in technical Institutes. There is also no self-training module such as progressive muscle relaxation and biofeedback training applied in their institute to give students the ability of control in terms of relaxing and learn how to relax. In fact, there are many relapse cases that been recorded due to failure in coping with the psychological problems. Both biofeedback-assisted and progressive muscle relaxation are regarded as interventions aimed at reducing stress response. These methods also help to improve relaxation skills as well. High and long-lasting stress may affect academic achievements, promotes negative influence on students' life and increase substance abuse (Richlin-Klonsky, Hoe, 2003). In view of the absence of any specific program or module in reducing psychological arousal among these students, therefore this study was done to develop and evaluate the effectiveness of progressive muscle relaxation with spirituality element using a biofeedback therapy in lowering psychological arousal of the students.

Literature Review

Physiological Arousal and Student's Psychological State

Physiological arousal is defined by the American Psychological Association Dictionary of Psychology as aspects of arousal shown by physiological responses, such as increases in blood pressure and rate of respiration and decreased activity of the gastrointestinal system. Such primary arousal responses are largely governed by the sympathetic nervous system, but responses of the parasympathetic nervous system may compensate or even overcompensate for the sympathetic activity. Russell and Barrett (1999) mentioned that arousal refers to the psychological experience of energy, mobilization, activity, tension, alertness, or quietness.

Calabrese (2008) suggests that there is a relationship between performance and arousal where increased arousal can help improve performance, but only up to a certain point. At the point when arousal becomes excessive, performance diminishes. This phenomenon was found to be alignrd with the Yerkes-Dodson Law. The law was first described in 1908 by psychologists Robert Yerkes and John Dillingham Dodson. They discovered that mild electrical shocks could be used to motivate rats to complete a maze, but when the electrical shocks became too strong, the rats would scurry around in random directions to escape. American Psychiatric Association (2013) revealed that physiological arousal associated with anxiety is often the source of panic-related bodily sensations according to the panic symptoms defined in DSM-5 such as a pounding heart, sweating, or shortness of breath.

Physiological arousal also involves emotional component (Hockenbury and Hockenbury 2010). Emotional arousal originates from the Autonomic Nervous System (ANS). The ANS consists of the parasympathetic nervous system (PNS; promoting calm, vegetative activities) and the sympathetic nervous system (SNS; involved in stress and activity), and is believed to be involved in affective, cognitive and behavioral responses of individuals (Benevides and Lane 2015). Abnormal levels of emotional arousal, deficient emotional control or a failure to adequately cope with emotions might help explain such emotional behavior problems (Zantinge, van Rijn, Stockmann, & Swaab, 2017). Arousal is crucial for steering and tuning our emotions and behavior in social situations to adapt and meet social goals (Chambers et al. 2009).

Progressive Muscle Relaxation (PMR)

PMR as well as BFB are used to improve relaxation skills which enable a student to reduce stress response (Peciuliene, Perminas, Gustainiene, & Jarasiunaite, 2015). Relaxation is a form of mind body therapy (therapy minds and muscles of the body) in complementary and alternative therapies (Complementary Alternative Therapy (CAM) (Moyad & Hawk, 2009). Previous study had shown that Progressive muscle relaxation (PMR) mechanism are closely related to the stress experienced by the client, either physical or psychological stress (Avianti et al., 2016). When using PMR technique, the condition of a client or a student can change. The changes in terms of the condition happen because there is a change of nerve impulses in the afferent pathways to the brain where inhibition of activation becomes (Avianti et al., 2016). Changes in these nerve impulses cause the individual to relax both physically and mentally, decreased heart rate, metabolic rate of the body to prevent an increase in blood sugar levels (Avianti et al., 2016).

In other study, Jacobson found that the tense and relax muscle groups 16 and distinguish sensations of tension and relax, one can eliminate muscle contraction and experiencing a sense of relaxation (Soewondo, 2012). Study done by (Avianti et al., 2016) shows that the mechanism of progressive muscle relaxation can reduce physical and psychological stress experienced by client, and the result is the same with the study done by Hassanpour-dehkordi & Jalali (2015), meet that interventions such as progressive muscle relaxation could contribute in decreasing the tension caused by chronic diseases, psychological tensions, anxiety, depression, and pain. The study done by (Peciuliene et al., 2015) shows that both relaxation methods proved to be effective in lowering psychophysiological variables. Methods of lowering psychophysiological variables should be applied with regard to the personality traits of the individuals: the course (of four sessions) of both types of relaxation helps to lower skin conductance in among people with higher scores of openness, compliance and conscientiousness, thus help to lower the heart rate in a person with higher scores of neuroticisms and extraversion.

Spiritual

Spiritual is an important element in a person's life because spiritual encourage and inspire people to find meaning and purpose in life (Ellison, 1983). Various definitions and descriptions of spirituality began to gain attention among professional researchers (Stanard, Sandhu, & Painter, 2000). Barnett & Johnson, (2011) spiritual cannot be separated element of life especially to clients who undergo psychotherapy sessions. There are prove that the capacity and capability has driven the spiritual element of human survival mechanisms and insight that helps people change through internal capacity that exceeds the limit in human self-awareness (Mountain, 2007). There are several elements that exist in spiritual development. The first element is the internal relationships and self-awareness.

Meanwhile, the second school of thought is that relationships through understanding and experience generated through the third and awareness relating to environment and spacious surroundings and finally the probability of contact to ultimate or divine (Mountain, 2007). According to Carpenter, Laney & Mezulis (2012), psych spiritual therapy process is divided into three stages, namely the level of self-awareness, self-esteem, self-development. The first level is the level of awareness among the clients about the nature of oneself such as where do we come from. The fact of the origin or incident that raises awareness in the individual about the question itself. The second stage is the identification of a godless life and apply feelings to worry about mistakes. This level also helps to identify potential clients who are real and internal capacity within oneself. The third level is the self-development of the client when they start to feel calm, happy, and always feel there is no hope except for God (the higher power). Each of these psych spiritual stages involve biofeedback training.

HRV biofeedback is the types of excellent tools develop to measure the human psycho psychology changes (Lehrer & Vaschillo, 2008). The word "*heart rate variability*" (HRV) refer to the procedure to measure the changes of heart beat in tempo *RR interval* (RRIs) in *electrocardiogram* (ECG) (Lagos et al., 2008). *Heart rate variability-biofeedback* (HRV-BF), also known as *respiratory sinus arrhythmia* (RSA) biofeedback, It involves the decreasing level of breathing for the frequency if the amplitude HRV being maximized. This frequency is called *resonant frequency* (RF) (Lehrer & Vaschillo, 2008; Lin et al., 2012). Vaschillo et.al,(2008) found that the breathing for each person is influencing RF baroreceptor, resulting the high HR amplitude because of the change of cardiovascular system in the human body. This the method provides evidence to cure the problem of autonomy nerves system such as fail of nerves system include asthma, posttraumatic stress disorder (PTSD) , fibromyalgia, hearth failure, and depression (Lin et al., 2012). This method can also help with the problems that are caused from imbalance of emotional state faced by the individual. (Lehrer & Vaschillo, 2008).

The Model of psychophysiological HRV, continues measurement for sympathetic and parasympathetic to the heart's beat which bring the information about the autonomic flexibility in human body (Karavidas, 2008). Result from the previous studies found that the additional element of spirituality gives better impact to improve the psych psychological problem. Using the information, it will be use as a guideline to look at the changes of the human body system, the emotional aspect, and the change in attitudes. The results of the study using HRV biofeedback on psychological arousal of the student showed the degree of change of student is positive. (Muhammad Nubli & Azham Abd Rahman, 2015;Urme Salam & Muhammad Nubli (2013).

Methodology

This is an experimental quantitative study involving 54 technical students with disciplinary problems. The participants for this study have been recruited from Technical Institute in Kuantan. To fulfil the specific purpose for this study, researcher using the data from the counsellor and contacted the student for the intervention techniques using the progressive muscle relaxation (PMR), biofeedback (BFB) and spirituality. DASS Questionnaire was used in determining the psychological state of the subjects. They are divided into two group which are treatment and control group in 4 session using progressive muscle relaxation with spirituality element for treatment. Another group is a control groups which received the progressive muscle relaxation without spirituality elements. Both groups are required to undergo biofeedback test before and after training.

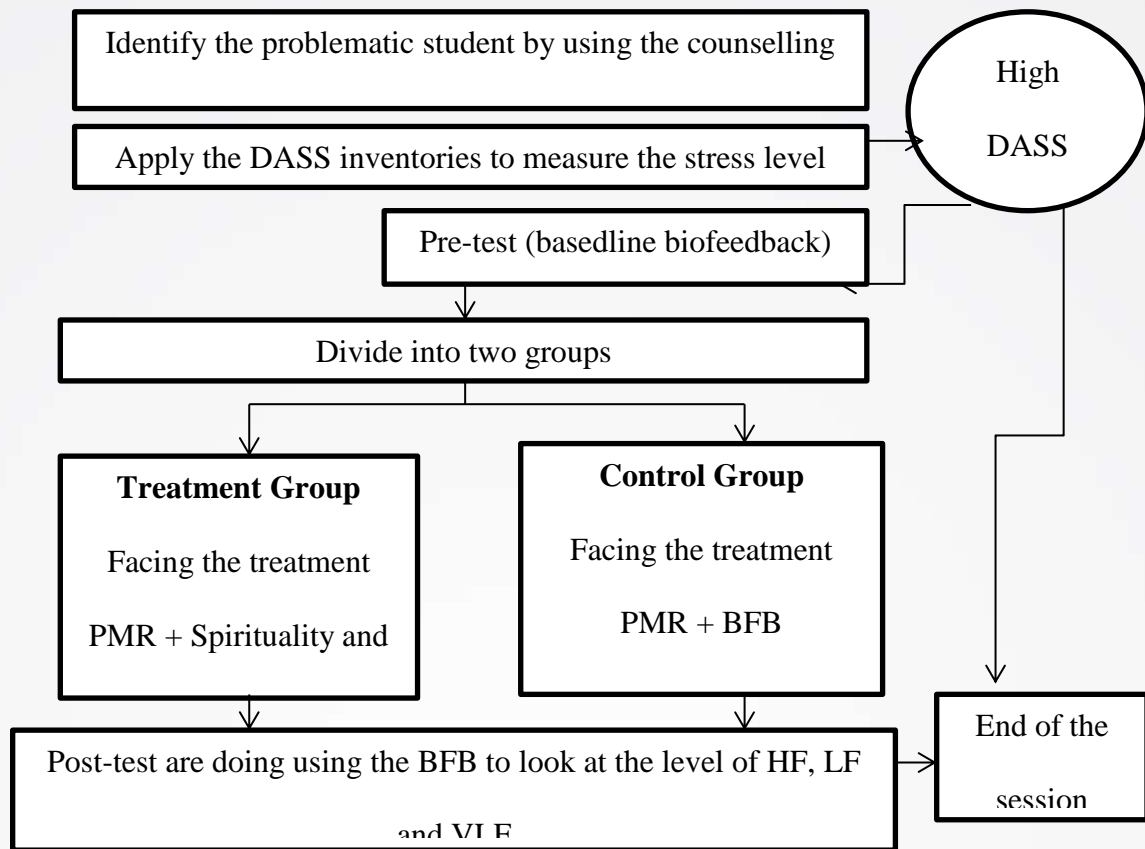


Figure 1: Flow chart of the methodological approach

Result

Based on the table 1, HF shows the calm feeling experienced by the participants of the study. Mean difference can be seen between the groups, no pre sessions conducted, pre-VLF test showed high mean for both groups of 69.9 and 60.5. Min height for VLF showed that participants experienced a high pressure from problems. VLF value indicated that the participants are well influenced by the value HF. At first the pre-HF is lower for the control group and the treatment group. The mean value of HF for the control group was 11.9, while the HF pre-treatment is the band of 17.4. Changes are clearly visible on the post-test with SS VLF values began to decline for both the treatment and control groups, respectively bringing the value of 12.5 and 4.4. Devaluation VLF indicates that the module BOP and BOP had the effect of pressure faced by students who have discipline problems in the institutions. The post-HF showed significant rise in both the treatment group and the control group which means the value of each point to 66.8 and 84.2. This shows a significant difference between the BOP and BOP module to change LF and VLF.

Table 1
Result pre and post of PMR+BFB and Spiritual

HRV Spectrum	Group	Test	Mean	Standard deviation
Very Low Frequency (VLF) =Red	PMR+ BFB (Control)	Pre	69.9	22.8925
		Post	12.5	10.0646
	S+PMR. BFB (Treatment)	Pre	60.5	27.4800
		Post	4.4	6.5622
Low Frequency (LF) = Blue	PMR+ BFB (Control)	Pre	18.4	15.2369
		Post	19.9	8.5024
	S+PMR. BFB (Treatment)	Pre	21.9	18.8384
		Post	11.4	11.3380
High Frequency (HF) =Green	PMR+ BFB (Control)	Pre	11.9	13.3482
		Post	66.8	10.8014
	S+PMR. BFB (Treatment)	Pre	17.4	17.5424
		Post	84.2	13.1517

The findings revealed in Table 1, can be clearly seen in the Figure 2 through the bar graph presented. From the bar graph below, both VLF and HF group showed a significant change in student HRV after 4 weeks of receiving treatment. Pulse rate (PR) indicates heartbeat rhythm and contains various intrinsic characteristics of peripheral regulation. Pulse rate variability (PRV) is a reliable method to assess autonomic nervous system function quantitatively as an effective alternative to heart rate variability (Chia, Hung, and Tzu, 2014)

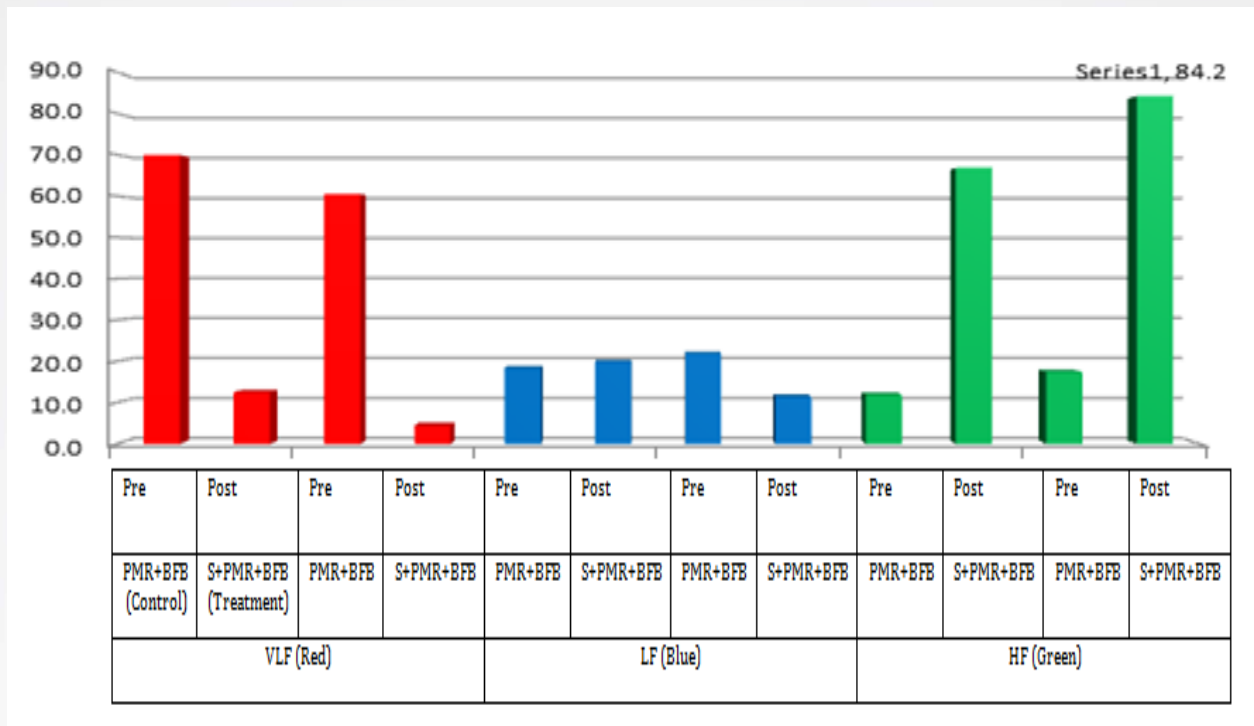


Figure 2: Result of pre and post of PMR plus with BFB and Spiritual

Discussion

PMR is one method that is rarely used in social setting compare with medical setting. Application and usage of PMR should be practice especially when dealing with psychological stress among students (Hassanpour-Dehkordi & Jalali, 2015; Kaur, 2016; Patel, 2014). PMR is a very effective method to provide relief for the body and calm the mind of students. PMR Integration with spiritual drive mind and heart to interact simultaneously in full awareness of one's body action (Robert T, E & V Kelly, 2015). Integration of spiritual elements such as dhikr, and focus will help the client to perform activities of PMR in the directive and in the same time the client can control full of themselves and provide relief emotions, mind and body to the client (Bloch-Atef & Smith, 2014; Leseho & Maxwell, 2010; Robert & Kelly, 2015).

Additional spiritual element is one of the most important intervention techniques integrated together in the intervention techniques because spiritual is not only a temporary intervention but will also help clients to control themselves in the situation that can be more virulent in the future. Spiritual elements also gives a sense of relief and reliance to God's strength and to act independently by the client in the future (Krägeloh, Chai, Shepherd, and Billington, 2012; Miller, 2003; Pargament & Saunders 2010).

Biofeedback is a technique that is controlling the situation of the psychophysiology of the clients. The biofeedback technique could be a powerful tool to control and measure the level of client circumstances whether it is positively changes in clients (Lagos et al., 2008; Peciuliene et al., 2015). Using biofeedback tool, the effectiveness of intervention techniques provided to the clients can be measured consistently and systematically. It can give the results and evidence of the effectiveness of one techniques using toward the human body (Avianti et al., 2016; Bloch-Atef & Smith, 2014; Combatalade, 2010; Sapar , 2010). Biofeedback is also used to measure the physiological state of a person who was very pertaining to psychological situations.

Generally, the pressure experienced in the lifestyle will impact and give the pressure on a person's psychology. The pressure felt by a person should be relieved by a variety of techniques developed to help clients acquire zooming physiology and psychology. The Integration of variety of technique not only can help clients to settle down the internal conflicts, but it also helps clients to solve psychological challenges faced by the clients. Furthermore, in the school setting and educational institutions, the pressures are always there and sometimes due to the pressure face by these students, can lead to the downturn of social attitude symptoms and disciplinary problems. Stress management techniques should be disclosed consistently and comprehensively to help clients, especially students, to control the pressure.

Conclusion

In conclusion, this study revealed that PMR using biofeedback therapy and spiritual element can help in reducing the physical arousal of the students which further control students' psychological state. By using this technique, students able to control their arousal and improve their academic performance. This technique can be a complementary tool in counseling session to achieve more successful session. In addition, intervention techniques developed have to be more creative and comprehensive in order to solve the problems of the target group involved. The technique developed are up to date and should be suitable for the target group. Stress has a direct relationship with one's body and mind. Appropriate stress management techniques are very important as it is the techniques used in counselling sessions that are conducted today.

Corresponding Author

Norizan Yusof,¹ Abdul Rashid Abdul Aziz² and Rezki Perdani Sawai³

¹ Klinik Psikoterapi & Kaunseling Kuantan

^{2,3} Faculty of Leadership and Management, University Sains Islam Malaysia

rashid@usim.edu.my

References

- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders*. Arlington, VA: American Psychiatric Association, 5.
- Avianti, N., Desmanarti, Z., & Rumahorbo, H. (2016). Progressive Muscle Relaxation Effectiveness of the Blood Sugar Patients with Type 2 Diabetes, (March), 248–254.
- Barnett, J. E., & Johnson, W. B. (2011). Integrating Spirituality and Religion Into Psychotherapy: Persistent Dilemmas, Ethical Issues, and a Proposed Decision-Making Process. *Ethics Behavior*, 21(2), 147–164.
- Busari, A. O. (2014). Academic Stress among Undergraduate Students: Measuring the Effects of Stress Inoculation Techniques. *Mediterranean Journal of Social Sciences*, 5(27P2), 599.
- Calabrese, E.J. (2008). Neuroscience and hormesis: Overview and general findings. *Crit Rev Toxicol*. 38(4), 249-252. doi:10.1080/10408440801981957
- Carpenter, T. P., Laney, T., & Mezulis, A. (2012). Religious coping, stress, and depressive symptoms among adolescents: A prospective study. *Psychology of Religion and Spirituality*, 4(1), 19–30.
- Chang, C.C., Hsu, H.Y. & Hsiao, T.C. (2014). The interpretation of very high frequency band of instantaneous pulse rate variability during paced respiration. *BioMed Eng OnLine*, 13, 46. <https://doi.org/10.1186/1475-925X-13-46>
- Davey, K. R., Cheung, J. C. K., Visvanathan, R., & Willison, J. W. (2010). A unique assessment of stress and stress factors on engineering academics in the research and teaching environment
- Dyson, R., & Renk, K. (2006). Freshmen adaptation to university life: Depressive symptoms, stress, and coping. *Journal of clinical psychology*, 62(10), 1231-1244.
- Hassanpour-dehkordi, A., & Jalali, A. (2015). Effect of Progressive Muscle Relaxation on the Fatigue and Quality of Life Among Iranian Aging Persons, (13).
- Hockenbury D.H., Hockenbury, S.E. (2010). *Discovering psychology*. London: Macmillan.
- Hudd, S. S., Dumlao, J., Erdmann-Sager, D., Murray, D., Phan, E., Soukas, N. & Yokozuka, N. (2000) Stress at college: effects on health habits, health status and self-esteem. *College Student Journal*, 34(2), 217–227.
- Karavidas, M. (2008). Heart Rate Variability Biofeedback for Major Depression. Association for Applied

- Psychophysiology & Biofeedback. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Heart+Rate+Variability+Biofeedback+for+Major+Depression#0>
- Kelly, W. E., Kelly, K. E., & Clanton, R. C. (2001). The relationship between sleep length and grade-point average among collage students
- Lagos, L., Vaschillo, E., Vaschillo, B., Lehrer, P., Bates, M., & Pandina, R. (2008). Heart Rate Variability Biofeedback as a Strategy for Dealing with Competitive Anxiety : A Case Study. *Journal of Association for Applied Psychophysiology & Biofeedback*, 36(3), 109–115.
- Lehrer, P., & Vaschillo, E. (2008). The Future of Heart Rate Variability Biofeedback. *Biofeedback*, 36(1), 11–14.
- Lin, G., Xiang, Q., Fu, X., Wang, S., Wang, S., Chen, S., Wang, T. (2012). Heart Rate Variability Biofeedback Decreases Blood Pressure in Prehypertensive Subjects by Improving Autonomic Function and Baroreflex. *The Journal of Alternative and Complementary Medicine*, 18(2), 143–152.
- Mountain, V. (2007). Educational contexts for the development of children ' s spirituality : exploring the use of imagination, 12(2), 191–205.
- Moyad, M. and Hawks, J.H. (2009) *Complementary and Alternative Therapies*. In: Black, J.M. and Hawk, J.H., Eds., *Medical Surgical Nursing: Clinical Management for Positive Outcomes*, 8th Edition, Elsevier Saunders.
- Nubli, M., Wahab, A., & Rahman, A. A. (2015). A Study on the Effects of Breathing Cycle Training Technique Together with Dzikir Recitation towards Achievement of Students ' HRV. *International Journal Of Computer Applications*, 114(17), 0975– 8887.
- Peciuliene, I., Perminas, A., Gustainiene, L., & Jarasiunaite, G. (2015). Effectiveness of progressive muscle relaxation and biofeedback relaxation in lowering physiological arousal among students with regard to personality features. *Procedia - Social and Behavioral Sciences*, 205(May), 228–235.
- Richlin-Klonsky, J., & Hoe, R. (2003). Sources and levels of stress among UCLA students. Student Affairs Briefing, 2. Senf, K., & Liau, A. K. (2013). The effects of positive interventions on happiness and depressive symptoms, with an examination of personality as a moderator. *Journal of Happiness Studies*, 14(2), 591-612
- Russell, J. A., and Barrett, L. F. (1999). Core affect, prototypical emotional episodes, and other things called emotion: dissecting the elephant. *J. Pers. Soc. Psychol.* 76, 805–819. doi: 10.1037/0022-3514.76.5.805
- Salam, U. B., Nubli, M., & Wahab, A. (2012). Drug addiction intervention for adolescents with religious spirituality and biofeedback. In *Proceedings of 3rd International Conference on Behavioral, Cognitive and Psychological Sciences*.
- Snyder, M. and Linquist, R. (2002). *Complementary Alternative Therapies in Nursing*. 4th Edition, Springer Publishing Company, New York
- Stanard, R. P., Sandhu, D. S., & Painter, L. C. (2000). Assessment of spirituality in counseling. *Journal of Counseling and Development*, 78(2), 204–210.
- Womble, L. P. (2003). Impact of stress factors on college students academic performance. *Undergraduate journal of Psychology*, 16(1), 16-23.
- Yerkes R.M., Dodson J.D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, 18(5), 459–482.
- Zantinge, G., van Rijn, S., Stockmann, L., & Swaab, H. (2017). Physiological Arousal and Emotion Regulation Strategies in Young Children with Autism Spectrum Disorders. *Journal of autism and developmental disorders*, 47(9), 2648–2657. <https://doi.org/10.1007/s10803-017-3181-6>



KAIZENTRENOVATION SDN BHD (1167478-D)
No A10-1 & A10-2, Gemilang Avenue,
Jalan Pulai 1, Proton City,
35900 Tg Malim, Perak
Laman Web: kaizentrenewationpublishing.com
Email: info.kaizentrenewation@gmail.com

e ISBN 978-967-18546-9-3

