

The Effect of Qigong Exercise on the Teacher's Work Stress Level

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ABSTRACT

Teachers are a population at risk of experiencing work stress due to excessive workloads. This condition requires management so that it does not affect work productivity and health. This study aims to identify the effect of qigong exercise on the teacher's work stress level. This research method is Pre-Experimental with one group of pre and post-test design. This research used a purposive sampling technique. The respondents were not allowed to do other relaxation therapies. Qigong exercise was done three times for 50 minutes per session in a week. The instruments were questionnaires of work stress level. The test was the Wilcoxon Signed Rank Test. This study passed the ethical test. The median value in pre-intervention was 51.00 and the value in post-intervention was 45.00. There is the effect of qigong exercise on the teacher's work stress with a p-value of 0.011 (<0.05). Qigong exercise can reduce work stress by reducing the secretion of the hormone cortisol. The exercise needs to be practiced regularly at least three times for 50 minutes per session in a week to obtain an optimal result in reducing workstress.

Keywords: qigong exercise, work stress

1. INTRODUCTION

Stress is a situation encountered by a person when something does not go the way that person wants it to be. The situation results in emotional reactions when a person handles arising problems. Work stress is an adaptive response to the consequences of each person's actions which place a person against psychological or physical coercion [1]. The work stress happening teachers arises due to their heavy workload that requires the teacher to adapt to it. The ability of each individual is very limited to endure the workload. Someone who cannot adjust his workload properly may cause stress within themselves [2].

Data from Basic Health Research, known as Riskesdas, in 2013 showed that the prevalence of mental disorders or stress in Yogyakarta is 8.1%. It places the Special Region of Yogyakarta to be in the 5th rank of the stress level in Indonesia [3]. Many factors cause work stress such as work period, no reward from the workplace, physical problems (age), and family problems. Factors that cause stress, especially on teachers, are for instance, limited time for rest, an increase of teacher's responsibilities in the workplace, heavy workloads, lack of supporting resources, and high demands from the workplace [4].

Efforts that have been made by the teachers to reduce stress only by taking a rest in their spare time such as taking asleep at night to refresh the body. Moreover, there has not been a treatment for teacher's work stress but exercising. According to Wahyudi, Bebasari, and Nazriati's research, one of the efforts related to exercises for stress therapy is Qigong [5]. Qigong is an exercise that coordinates body posture by using deep breathing,

meditation, and mental focus. The benefit of Qigong exercise is to reduce stress levels. The exercise has moderate intensity with steady respiratory control and stretching exercises [6]. In moderate exercise, cortisol provides greater negative feedback and reduces cortisol secretion [7]. It is done by reducing the secretion of ACTH (adrenocorticotrophic hormone) in the anterior pituitary and CRH (corticotrophin-releasing hormone) in the hypothalamus [8].

The other benefit of Qigong exercise is to reduce high blood pressure (hypertension). The result of quantitative research indicated that Qigong can reduce systolic and diastolic blood pressure [9]. Breathing exercises, relaxation, and slow gentle movements regularly are proven to increase the release of non-adrenaline through urine, reduce cortisol levels and sympathetic nerve activity that later has a positive impact such as a stable heart rate and a normal blood pressure. It happens due to the balanced harmonious sympathetic and parasympathetic nerve activity. Other than that, the exercise can increase antioxidants to eliminate free radicals in the body and stabilize blood pressure [10]. The way of Qigong exercise responds to spinal movements that initiate gentle, slow, calm, and continuous body movements can create tranquility for the body and mind with the raise of negative feedback. The feedback later reduce cortisol by stimulating the hypothalamus to reduce the secretion of CRH and ACTH so that the stress is reduced

2. METHODOLOGY AND METHODS

This research is a quantitative analytic using the *Pre-experimental* method, with *one group of pre and post-test*

design. Upon the pretest, they were given intervention of Qigong exercise practice three times for 50 minutes per session in a week, and later the posttest was conducted to reveal the effect of Qigong exercise on the teacher’s work stress level. The data of the research was generated by using the Work Stress questionnaire. This study passed the ethical test with letter number 535/EP-FKIK-UMY/XI/2018 on November 6, 2018. In this study, Qigong exercise was conducted every morning before the teaching activities. This study used a purposive sampling technique. The inclusion criteria in this study included teachers who were willing to be respondents in the study, adhered to take part in the implementation of the study from the beginning to the end, and teachers who did not practice other relaxation therapies to reduce stress in the form of exercise and during the research conduction. Meanwhile, the exclusion criteria in this study included the teacher who participated in the research but then quitte amid the research conduction for certain reasons and the teacher who underwent illness or disability that made them unable to stand to practice the Qigong exercise.

3. RESULTS

The results of this study will be divided into two tables, which will be shown in the bottom of this page. Table 1 will show the characteristics of respondents. Meanwhile, table 2 will show the effect of qigong exercise on the teacher’s work stress level.

Table 1. Characteristics of Respondents

Respondent’s Characteristic		F (n)	(%)
Age			
1.	Early Adulthood: 26-35 years old	1	6,3
		4	25,0
2.	Late Adulthood: 36-45 years old	4	25,0
		7	43,8
3.	Early Elderly: 46-55 years old		
4.	Late Elderly:56-65years old		
Gender			
1.	Male	3	18,8
2.	Female	13	81,3
Work Period			
1.	0-9 years	1	6,3
2.	10-19years	5	31,3
3.	20-39years	5	31,3
4.	30-39years	5	31,3
Total		16	100%

Table 2. The Effect of Qigong Exercise on the Teacher’s Work Stress Level

Category	Pretest			Posttest			Wilxocon Test
	F	%	Median	F	%	Median	
Low	2	12,5	51,00	9	56,3	45,00	p-value =0,011
Moderate	13	81,3		7	43,8		
High	1	6,3		0	0,0		
Total	16	100,0	16	100,0			

4. DISCUSSION

The highest characteristic of age of respondents in this study ranged from 56-65 years old (43.8%). According to the Health Department, that range is categorized in late elderly group, while according to WHO, it is categorized as an elderly group [3]. This stage is characterized by a decrease in the stamina of the body so that the body organs cannot function optimally. The most respondents in this study are the elderly who have limitations in completing their work in teaching and also the heavy workload such as responsibilities in the school. Winefield et. al. found that age influences work stress levels [11]. In line with the theory of Robbins, he emphasized that individual abilities especially agility, dexterity, strength, and coordination decrease along with the increase of one’s age [12]. Moreover, it also arises constant boredom that can result in stress at the workplace. In contrast to the result of Irkhami’s study, it showed that age does not affect work stress as the higher the respondent’s age is, the lower the level of work stress will be [13]. It is also supported by Putri’s research, stating that the older the people are, the more expertise and skills they will improve with a greater sense of responsibility [14]. In addition, age is not the main factor that can influence one’s work stress level as many other individual factors have the potential to become the trigger of stress at the workplace.

Based on gender characterization, the highest number of participants in this study is female (81.3%). It is related to the study of Wu and Yu arguing that women have a high level of femininity who can experience greater anxiety than men who have a high level of masculinity [15]. Anxiety that arises in women is a way of emotional adjustment as the expression of stress when they encounter problems at the workplace. Meanwhile, in the state of masculinity, men hardly feel pressured or anxious as they are more confident in their ability to solve problems. The respondents’ anxiety of this study arises in teachers who have other responsibilities outside of teaching activities in the classroom such as extracurricular teaching activity and other responsibilities in the school.

The least work period of respondents is in the range of 0-9 years (6.3%). Respondents in this study experienced pressure and adjustments in their work as they have to take responsibilities in student’s activities. In relation to this, the research by Nadialis and Nugrohoseno found that when workers are in the early years of work around less than ten years, they are still in the process of learning and self-adaptation because they need to adjust to work-related problems [16]. It is what causes the heavy workloads and pressures on workers in their early years that can trigger the work stress. On the one hand, Ibrahim, Amansyh, and Yahya, argued that the new work period does not have a lot of workloads that cause work stress. It is because they are still eager to conduct their work duties and have not experienced boredom due to monotonous work routines [17].

The work stress is an inevitable thing on workers as it has several triggers such as the period of work, no reward from the workplace, physical issues (age), and family problems. In the assessment of pre-intervention action, the work stress experienced by teachers at Vocational School 2 Godean was caused by the high number of tasks and responsibilities as well as the heavy workloads.

Based on the result of the study, it shows that the level of work stress on teachers of Vocational School 2 Godean in the post-Qigong exercise intervention is in the moderate category by 7 respondents (43.8%). It indicates that qigong exercise can reduce the teacher's work stress level at Vocational School 2 Godean. This result is in line with the mean and the median pre-test and post-test of the work stress level in which the mean pre-test and post-test decreased from 50.81 to 45.37. Moreover, the median pretest and posttest decreased from 51.00 to 45.00.

It is supported by the results of hypothesis testing showing that there is an effect of Qigong exercise on the teacher's work stress level at Vocational School 2 Godean. It can be seen from the Wilcoxon Signed Rank Test calculation which shows the p-value of 0.011. The result shows that there is a decrease in the work stress level in the post-Qigong exercise intervention. It decreases from 13 respondents (81.3%) in the moderate category to 9 respondents (56.3%) in the low category.

Furthermore, stress is often associated with an increase in cortisol levels. Cortisol is derived from glucocorticoid hormones produced by the adrenal cortex, which is a corticosteroid released in response to stress as a product of the hypothalamus [18]. By practicing Qigong exercise, the cortisol level can be reduced directly from the body upon 1 to 2-hour practicing compared to the pre-exercise [19]. In line with what was stated by Budde et. al., a strong response to exercise is hardly able to increase a cortisol level significantly [20]. Furthermore, the aerobic exercise at a moderate intensity can stimulate the hippocampus as part of the limbic system that can strengthen the memorizing ability and frontal lobes as emotional control, behavior, and problem-solving so that a cognitive function in the body will be interfered.

Frequency, Intensity, Time, Type (FITT) are parts of an exercise program. Frequency shows the number of exercises performed within 1-week period. The ideal frequency of exercise is 3 to 5 times a week. The intensity indicates the strength of the exercise and has an influence on body function which can be measured by calculating the maximum pulse rate (DNM) = $220 - \text{age}$ (in years). The percentage of the maximum pulse rate is converted into an aerobic exercise intensity, with the category of low intensity (50-70% of maximum pulse rate), moderate intensity (70-80% of maximum pulse rate), and high intensity (80-100% of maximum pulse rate). Furthermore, the type of exercise performed is aerobic or anaerobic and the time in exercise indicates the duration of the exercise itself [21].

In the practice of Qigong exercise in this study, the frequency is three times in a week. The intensity examined prior to the practice is the maximum pulse rate ($220 - \text{age} = 220 - 48 = 172$) in the range of moderate intensity which is measured by $172 \times 70\% = 120.4$; $175 \times 80\% = 137.6$. Upon the experiment of Qigong exercise practice, the pulse rate is 125, so that the Qigong exercise is included in the moderate intensity. Based on the type of exercise, Qigong exercise is a type of aerobic exercises that requires oxygen for energy formation and involves a respiratory activity in every movement. Meanwhile, time or duration of the Qigong exercise is 50 minutes per session.

The movement in Qigong exercise has benefits in respiratory and mind control. It begins with an erect neck, chin slightly stretched out forward, tongue touching the palate, chest widely opened, and relaxed stomach. It can calm the mind and control the breathing activity to enter the internal organs of the body easily. The next movement is *Gerakan Kuda-Kuda* or half-stand movement. This movement can stimulate the tip of the tail bone along the spine to the top of the head and end up in the upper mouth (*Meridien Dumai*). It later stimulates the spinal cord to release endorphins and reduce stress [22]. The next movement is swinging head and hands, which can stimulate the body from the buttocks going along the lower spine to the shoulder (*Dazhui joints*) on the nape of the neck, which helps control the internal circulation and relieve stress.

The result of the study is in line with Priana's research stating that the movements of Qigong exercise focus on slow, balanced body movements combined with gentle breathing [23]. Therefore, Qigong exercise can reduce stress related to mental-emotion. It is likewise the concept of exercise, which is defined as a solid, stress-free, short (30 minutes non-stop) movement as well as being adequate, easy, and inexpensive which later makes a person physically and mentally healthy [24]. The strength of this study is that it uses videos from the experts of Qigong exercise and standard work stress measurement tools. Meanwhile, the weaknesses of the study are the researcher cannot control the confounding variables, including the respondent's habits at home, the problem encountered by the respondents, as well as the coping mechanism conducted by the respondent. Moreover, the intervention was only given three times so that it caused less optimal.

5. CONCLUSION AND RECOMMENDATION

The major characteristic of respondents was they were mostly female who are 56-65 years old. Their minimum work period was 0-9 years. Prior to practicing Qigong exercise (pre-test), the work stress levels were mostly in the moderate category. Upon practicing the Qigong exercise (post-test), most of the work stress levels were in the low category and none were in the high category. The

result indicated that there is an effect of Qigong exercise on the teacher's work stress level with a p-value of 0.011 (<0.05). It is necessary for further research to practice Qigong exercise regularly at least 3 times in a week in which 50 minutes for each session. It is used as a therapy to reduce work stress related to health and safety of workers at the workplace. As a basis for the development of further research on how to reduce work stress with Qigong exercise, it is needed to increase intervention period by a month.

AUTHORS' CONTRIBUTIONS

Author 1 did data gathering, data analysis, research writing, and reviewing. Whether Author 2 helped Author 1 to do data gathering, data analysis, and research writing.

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REFERENCES

- [1] R. Sabuhari, M.M. Soleman, Zulkifly, Pengaruh Work-Family Conflict terhadap Stres Kerja: Studi Kasus pada Ibaud yang Bekerja sebagai Guru di Kota Ternate, *Jurnal Penelitian Humano* 7(2) (2016) 113-125. DOI: <http://dx.doi.org/10.33387/hjp.v7i2.320>
- [2] H. Budiwati, Identifikasi Sumber Stres Tenaga Pengajar dan Pengaruhnya terhadap Kinerja Dosen di Stie Widya Gama Lumajang, *Jurnal Penelitian Ilmu Ekonomi Wiga* 6(1) (2016) 27-35
- [3] Badan Penelitian Dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia. Riset Kesehatan dasar, Kesehatan Kementerian Kesehatan Republik Indonesia, Jakarta, 2013
- [4] S. Behera, D. Manaswini, Stress and Spirituality among School Teachers, *India*, 6(3) (2015) 305-308
- [5] R. Wahyudi, E. Bebarsari, E. Nazriati, Hubungan Kebiasaan Berolahraga dengan Tingkat Stres pada Mahasiswa Fakultas Kedokteran, *JOM FK* 2(2) (2015) 1-11
- [6] K.T.A. Suparwati, I.M. Muliarta, M. Irfan, Senam Tai Chi lebih Efektif Meningkatkan Fleksibilitas dan Keseimbangan daripada Senam Bugar Lansia pada Lansia di Kota Denpasar, *Bali: Sport and Fitness Journal* 5(1) (2017) 62-68
- [7] W.J. Kraemer, L.D. Rogol, *The Endocrine System in Sports and Exercise*, Blackwell Publishing, Victoria, 2005
- [8] L. Sherwood, *Fisiologi Manusia Dari Sel Ke Sistem*, EGC, Jakarta, 2013
- [9] X. Xiong, P. Wang, X. Li, Y. Zhang, Qigong for Hypertension: A Systematic Review. *Medicine* 94(1) (2015) 1-14. DOI: <https://doi.org/10.1097/MD.0000000000000352>
- [10] A. Supriani, Pengaruh Senam Tai Chi terhadap Penurunan Tekanan Darah pada Lansia dengan Hipertensi, *Jurnal Keperawatan & Kebidanan* 7(2) (2014) 22-30
- [11] A. H. Winefield, N. Gillespie, N. Stough, J. Dua, J. Hapuarachchi, & C. Boyd, *Occupational Stress in Australian University Staff: Results From a National Survey*, *International Journal of Stress Management*. 10(10) (2003) 51-63. DOI: 10.1037/1072-5245.10.1.51
- [12] S. P. Robbins, *Perilaku Organisasi*, Prenhallindo, Jakarta, 2006
- [13] F. L. Irkhami, Faktor yang berhubungan dengan Stres Kerja pada Penyelam di PT. X, *The Indonesian Journal of Occupational Safety and Health* 4(1) (2015) 54-63. DOI: <http://dx.doi.org/10.20473/ijosh.v4i1.2015.54-63>
- [14] G.W. Putri, A.R. Tualeka, Hubungan antara Stres Kerja dengan Tingkat Produktivitas Tenaga Kerja di CV.X, *The Indonesian Journal of Occupational Safety, Health and Environment* 1(1) (2014) 144-154
- [15] Y.C. Wu, S.K. Yu, The Effect of Gender Role on Perceived Job Stress, *The Journal of Human Resource and Adult Learning* 6(2) (2010) 74-79
- [16] E.C. Nadialis, D. Nugrohoseno, Hubungan Usia, Masa Kerja dan Beban Kerja dengan Stress Kerja Karyawan, *Jurnal Ilmu Manajemen* 2(2) (2014) 489-501
- [17] H. Ibrahim, M. Amansyah, G.N. Yahya, Faktor-Faktor yang Berhubungan dengan Stres Kerja pada Pekerja Factory 2PT Maruki Internasional Indonesia Makassar, *Al-Sihah:Public Health Science Journal* 8(1) (2016) 60-68. DOI: <https://doi.org/10.24252/as.v8i1.2082>
- [18] M.J.A.G. Henckens, G.A.V. Wingen, M. Joels, G. Fernandez, Time- dependent Effects of Cortisol on Selective Attention and Emotional Interference: A Functional MRI Study, *Front Neurosci* 6(66) (2012) 1-14. DOI: 10.3389/fnint.2012.00066
- [19] R. N. Jurcău, I. M. Jurcău, R. A. Rozsnyai, N. Colceriu, A brief analysis of the relationship between QiGong and stress, *Health, Sports & Rehabilitation Medicine* 20(1) (2010) 39-41. DOI: <https://doi.org/10.26659/pm3.2019.20.1.39>
- [20] H. Budde, S. Machado, P. Ribeiro, M. Wegner, The Cortisol Response to Exercise in Young Adults, *Article Frontiers in Behavioral Neuroscience* 9(13) (2015) 1-2. DOI: <https://doi.org/10.3389/fnbeh.2015.00013>
- [21] H. Patel, H. Alkhawam, R. Madanieh, N. Shah, C. E. Kosmas, T. J. Vittorio, Aerobic vs anaerobic exercise training effects on the cardiovascular system. *World journal of cardiology*, 9(2), (2017) 134-138. DOI: 10.4330/wjc.v9.i2.134
- [22] W. W. Dinata, Menurunkan Tekanan Darah pada Lansia melalui Senam Yoga, *Jurnal Olahraga Prestasi* 11(2) (2015) 77-90. DOI: <https://doi.org/10.21831/jorpres.v11i2.5730>
- [23] A. Priana, Pengaruh Olahraga Senam Tai Chi terhadap Kesehatan Mental Emosional Lanjut Usia, *Journal of S.P.O.R.T* 1(1) (2012) 1-5
- [24] G. Santosa, *Ilmu Kesehatan Olahraga Untuk Kesehatan dan Untuk Prestasi Olahraga*, FPOKUPI, Bandung, 2007