

**EFFECT OF YOGA PROGRAM ON MENTAL HEALTH: COMPETITIVE ANXIETY IN SEMARANG BADMINTON ATHLETES**Donny Wira Yudha Kusuma^{1✉}, Wang Bin²¹Faculty of Sport Science, Universitas Negeri Semarang, Indonesia²Central China Normal University, China**Info Artikel***Article History:*

Submitted May 2017

Accepted July 2017

Published July 2017

Keywords:

Yoga; competitive-anxiety; badminton

DOI<http://dx.doi.org/10.15294/kemas.v13i1.9862>**Abstract**

The most obvious factor which really affects the capability of an athlete, especially in Semarang badminton, is psychological factors. One technique supposed to represent all the mental techniques are yoga. A total of 20 athletes (12 men & 8 women) from the badminton club in Semarang participated in this study. Quasi-experimental was used in the study. Two groups were selected according age group and class, and both are candidates of the provincial team. We measured anxiety levels with CSAI-2R and sphygmomanometer. We analyze the data using t-test and index gain. Cognitive anxiety item on the yoga group decreased ($x=-2.10$; -21.21%), and so did the control group ($x=-0.20$; -2.19%). Somatic anxiety symptoms were similar to yoga group ($x=-3.50$; -26.92%), but not for the control group, which increased ($x=1.70$; 17.71%). Whereas self-confidence has a negative correlation to other variables, the yoga group increased ($x=2.00$; 12.35%) but the control group decreased ($x=-0.30$; -1.99%). The last was badminton performance, yoga group increased ($x=2.40$; 14.67%) and whereas the control group decreased ($x=-3.283$; -17.23%).

Introduction

The obvious factor which really affects the capability of an athlete is psychological factors. One of the aspects that affect performance of athletes on the game is anxiety. Many researchers (Vincent P, 2015; Ashwani B, 2015), had examined the influence of anxiety in sports performance. Anxiety was commonly reported when athletes were not confident in dealing with stress inducing situation (Vincent P, 2015) and may affect various types of sports (Ashwani B, 2015). In addition, anxiety was often the interpretation of psychological arousal (Alison, 2013).

When in a state of stress and anxiety, some athletes observed decreased performance,

even to the point of “choking”. Therefore, the relationship between anxiety and sport performance became a topic of interest to researchers in the field of sport psychology. Sports psychologists began studying anxiety in an effort to develop appropriate interventions that could be useful in improving the negative experiences that were sometimes detrimental for athletes, initially as an independent construct and later as interdependent constructs (Andrew, 2009; Vincent P, 2015; Ashwani B, 2015; Alison, 2013).

Anxiety commonly occurs in athletes is competitive anxiety. Competitive anxiety is a specific negative emotional response to competitive stressors (Fletcher, 2009). Study

✉ Correspondence Address:

FIK UNNES, Kampus Sekaran Gunungpati, Semarang

Email : donnywirayudhakusuma@mail.unnes.ac.id

on the relationship of competitive anxiety and performance was originally based on an inverted-U hypothesis. Basic assumptions or hypothesis put curvilinear relationship between performance and physiological arousal (Andrew, 2009; Vincent P, 2015; Ashwani B, 2015; Alison, 2013).

Others anxiety theorists have widened the dimensional approach of the inverted-U to examine other potential dimensions of anxiety. Martens in Cox (2007), sought to explain the multidimensional aspects of sport anxiety. Their theory showed that anxiety was composed of both somatic and cognitive subcomponents. Based on this theory, cognitive anxiety is defined as “the mental component of anxiety and is caused by negative expectations about success or by negative self-evaluation” (Hanton, S & Mellalieu S.S, 2009; Yago, 2015). They convey a negative linear relationship between performance and cognitive anxiety. That is, if the cognitive anxiety was high, athletes have lower performance, and vice versa.

There are two different views about anxiety. The first, the state anxiety and trait anxiety, were made by Spielberger in (Cox, 2007; Hanton & Mellalieu, 2009). The second is the somatic anxiety and cognitive anxiety conveyed by Martens (Cox, 2007). Trait anxiety refers to anxiety in the aspect of personality. Martens said that when we are anxious, we experience the physiological changes associated with high arousal, including increased heart rate and blood pressure, ‘butterflies’ in the stomach, faster breathing, and flushed face. Anxiety increases heart rate and blood pressure. It also increases metabolism and oxygen consumption. The dimensions of competitive anxiety tend to be influenced by sex, type of sport, and level of ability. Concerning sex, female athletes were more prone to feel more anxious compared to male athletes (Hanton, 2009; Yago, 2015). Competitive anxiety is a specific negative response to competitive stressor. The negative response is substantially of cognitive anxiety and somatic anxiety. Somatic anxiety is a physiological changes response associated with high arousal, including increased heart rate and blood pressure, ‘butterflies’ in the stomach, faster breathing, and flushed face. Anxiety increases heart rate and blood pressure,

increases metabolism and oxygen consumption, quicken fatigue, and reduce attention. Whereas cognitive anxiety is a physiological changes response associated with anxious thinking involving worries, self-doubts, and images of losing and humiliation.

Next, studies had indicated that a reduction in anxiety may enhance athletic performance. There are a number of psychological techniques for regulating anxiety that could be applied to the sport psychology. Techniques to reduce anxiety are as follows: Relaxation techniques, Cognitive-behavioral techniques, Imagery, Transcendental Meditation, and Diaphragmatic Breathing (Walton, 2004. Gaines T, 2008), Taichi Chuan and Jacobson’s Progressive Muscular Relaxation (Tanti, 2016; Sholihatul, 2015). Among these, the cognitive- behavioral approach is one of the most effective therapy (Walton, 2004. Gaines T, 2008). Nevertheless, one technique supposed to represent all that is offered, is a yoga technique. Studies on yoga that are associated with relaxation expressed by Caroline (2006), argued that yoga is very effective for reducing anxiety, stress, and improving the health status as well as relaxation techniques. Then, meditation, cognitive behavioral, and imagery techniques could also be carried out by practicing yoga (Sheng-Chia Chung, 2012). Yoga breathing techniques called “pranayama” may affect anxiety, longevity, post-traumatic stress disorder, and it may also improve meditation and reduce depression (Shirley, 2009).

Only a few studies examined the relationship between competitive anxiety against yoga exercises on the athlete, Hala (2010) study was among one of them. They examined the practice of yoga on the athlete to determine the impact caused by psychological, competitive anxiety. Yoga has a significant effect on the decline of competitive anxiety in the athlete. In general, yoga appropriate for athletes was divided into four parts: stretching, postures (asana), breathing (pranayama), and meditation. Stretching serves to prepare the muscles for specific movements and helps the muscles to relax. Postures (asana) are almost equal to the stretching; the difference being that stretching is usually performed before and after exercise. Postures include balance and

relaxation, strengthening and stretching. Yoga breathing helps oxygenate the system, improve the musculature of the spine, strengthen the diaphragm, and relieve pain. Meditation is a technique to rest your mind and achieve intrinsic awareness that is different from normal consciousness (Fabrizio, 2009).

Based on a study in badminton in Semarang, reported that many problems occur on psychological factors, such as crucial match, first games, fear of losing, afraid for their parents, unreadiness, arena problems, people watching, and strong enemy and it is a characteristic of anxiety athlete before or during a competition. Investigation continues into the problem-solving phase of the anxiety that occurs in athletes. Forty badminton athletes from different skill level, twenty parents, and ten badminton coaches served as subjects of the study. With the Revise Competitive State Anxiety Inventory-2 (CSAI-2R) and overview anxiety questionnaire as analyzing tools, we further verified data by applying descriptive statistics of SPSS 19. The study concluded that competitive anxiety in Semarang badminton athletes was high, and could theoretically affect the athlete's performance in the competition. Data on each variable showed high in both cognitive anxiety and somatic anxiety (22.5% and 20%), and less self-confidence (17%). Treatment performed by the coach was ineffective for reducing competitive anxiety on badminton athletes, because the treatment was performed separately.

Yoga has multiple benefits, including; injury prevention and increased performance, body awareness, balance, core strength, breath awareness, mental focus, stress relief, recovery time, and endurance (LaMeaux, 2011). With the many benefits derived from the practice of yoga, it is important for badminton athlete to exercise yoga. The benefits of yoga include: injury prevention, increased performance, body awareness, balance, core strength, breathe awareness, mental focus, stress relief, recovery time, and endurance.

This study was conducted to investigate the effect of yoga programs on competitive anxiety in Semarang badminton athletes. Differences in age, sex, level and competitive experience were compared between yoga

programs and cognitive behavioral practice.

Method

A total of 20 athletes (12 men & 8 women) from the badminton club in Semarang participated in this study. Two groups were selected according to the age group and class. Both groups were the candidate of the provincial team. Coincidentally, at the beginning of December to January, Semarang Badminton Organization held badminton athletes' selection to be a provincial team. Six athletes will be selected from 20 athletes to become provincial teams (3 men and 3 women). Study subject were 8 females and 12 males. The two groups were subsequently randomly assigned into the experimental group and the control group (10 athletes as experiment group and 10 athletes as control group).

Experiment group was considered as yoga model training group in which they underwent yoga model practices. Control group performed cognitive behavioral practice. The experimental group were given training for 3 days a week for 6 weeks in total, with 1 hour in each practice (at 09.00 pm -10.00 pm). After eight weeks, all participants (experiment and control group) followed the next competition. Same to pre-test, post-test was executed one hour before the game to determine the level of anxiety after the use of the product (yoga exercises). The test used Badminton Test Performance to find out the performance after using the product. Data analysis using t-test is useful to calculate the difference or effect. T-test data analysis used SPSS -15 with a significance level of 5%.

Demographic information: The athletes were requested to provide information about sex, age, badminton club, level of competition (local/province), and competitive experience. Test was conducted ± 30 minutes before the game (to measure anxiety) and during the match (to measure performance). We measured anxiety levels with the CSAI-2R and sphygmomanometer; this test took about 15 minutes. Then we measured performance using Badminton Performance Test during the game. Competitive anxiety: The athletes responded to an Indonesian version¹⁷ of the CSAI-2R (Cox, 2007). For Physiological Measurement, we used sphygmomanometer to measure

blood pressure. Then we used Badminton Performance Test to collect data of badminton performance during competition. This instrument calculated the number of successes and failures in all badminton techniques during the match/competition. This instrument was independently made, therefore necessary to find validity and reliability. Calculated badminton technique is the number of successes and failures in Clear, Drop Shot, Service, Smash, Netting, and Drive.

Results and Discussion

In this study, we examined effects of “yoga for badminton” on competitive anxiety and badminton performance in Semarang badminton athletes. We assessed symptoms of competitive anxiety and badminton performance in both groups and compared pre with post intervention between the experimental and control group. As study was conducted in Semarang badminton athletes, all subjects were provincial level. Experimental and control groups consisted of 10 athletes respectively. Competitive anxiety tests (systole, diastole, heart rate, cognitive anxiety, somatic anxiety, self-confidence) and badminton performance test were used during the pre-test and post-test with test respectively for all participants.

The hypothesis proposed in the data analysis in the experimental group was a difference between the mean value of competitive

anxiety, blood pressure (systole, diastole, hear rate), and badminton performance before and after the yoga exercise. We used paired t-test to determine the average differences between pre-test and post-test in the experimental group.

Based on the calculation of the t-test and significance of each variable, it was reported that the hypothesis is accepted if the “-T table $\leq T \leq T$ value table” (T table = 2.262, $p > 0.05$). From table 4.24 shows the t-values of systole, diastole, and heart rate were under 2.262 or sig. (2-tailed) was above 0.05 ($p > 0.05$), which means that there was no difference between the mean value of systole, diastole, and heart rate. Therefore, H0 was accepted. While the t-values of cognitive anxiety, somatic anxiety, self-confidence, and badminton performance was above 2.262 or sig. (2-tailed) was below 0.05 ($p < 0.05$), which means that there was a difference between the mean value of systole, diastole, and heart rate. Therefore, H0 was rejected.

Table 1 also showed the results of pre-test and post-test overall variable of the experiment group that includes the mean value of systole before and after yoga treatment were decreased ($x=2.5$; 2.14%). The mean of diastole decreased ($x=8$; 0.01%). The mean of heart rate increased ($x=10.5$; 12.39%). The mean of cognitive anxiety decreased ($x=2.1$; 21.21%). The mean of somatic anxiety reduced ($x=3.5$; 26.92%). Self-confidence increased ($x=2.0$; 12.35%). Mean of badminton performance increased ($x=2.45$;

Table 1. Paired Samples Between Pre-Test and Post-Test in Experimental Group

Pair differences	Mean	Std. Deviation	T	Sig. (2-tailed)	% change
Pair 1 S1 - S2	2.50000	10.80381	.732	.483	-2.14
Pair 2 D1 - D2	.80000	10.47537	.242	.815	-0.01
Pair 3 HR1 - HR2	-10.50000	18.80455	-1.766	.111	12.39
Pair 4 CA1 - CA2	2.10000	2.23358	2.973	.016	-21.21
Pair 5 SA1 - SA2	3.50000	2.54951	4.341	.002	-26.92
Pair 6 SC1 - SC2	-2.00000	2.49444	-2.535	.032	12.35
Pair 7 BP1 - BP2	-2.45000	2.66860	-2.903	.018	14.67

Source : Primary Data

Note. t = t-statistics; s1 = systolic in pre-test; s2 = systolic on post-test; d1=diastolic on pre-test; d2=diastolic on post-test;hr1=heart rate on pre-test; hr2=heart rate on post-test; sa1=somatic anxiety on pre-test; sa2=somatic anxiety on post-test; sc1=self-confidence on pre-test; sc2=self-confidence on post-test; BP1=Badminton Performance on pre-test; BP2=Badminton Performance on post-test; %=percentage.

Table 2. The Paired Samples Between Pre-Test and Post-Test in Control Group

Paired Differences	Mean	Std. Deviation	t	Sig. (2-tailed)	% change
Pair 1 S1 - S2	-6.60000	15.67872	-1.331	.216	5.83
Pair 2 D1 - D2	-6.30000	8.81980	-2.259	.050	8.76
Pair 3 HR1 - HR2	-9.50000	21.13580	-1.421	.189	11.20
Pair 4 CA1 - CA2	.20000	2.04396	.309	.764	-2.19
Pair 5 SA1 - SA2	-1.70000	2.35938	-2.279	.049	17.71
Pair 6 SC1 - SC2	.30000	4.05654	.234	.820	-1.99
Pair 7 BP1 - BP2	3.28300	4.08188	2.543	.032	-17.23

Source : Primary Data

Note. t = t-statistics; s1 = systolic in pre-test; s2 = systolic on post-test; d1=diastolic on pre-test; d2=diastolic on post-test;hr1=heart rate on pre-test; hr2=heart rate on post-test; sa1=somatic anxiety on pre-test; sa2=somatic anxiety on post-test; sc1=self-confidence on pre-test; sc2=self-confidence on post-test; BP1=Badminton Performance on pre-test; BP2=Badminton Performance on post-test; %=percentage.

14.67%).

We hypothesized that in the data analysis in the control group, there would be a difference between the mean value of competitive anxiety, blood pressure (systole, diastole, heart rate), and badminton performance before and after the yoga exercise. We used paired sample t-test to determine the average differences between pre-test and post-test in the experimental group. The results of calculation of SPSS was presented in the table below:

Based on the calculation of the t-test and significance of each variable, it was reported that the hypothesis is accepted if the “-T table $\leq T \leq T$ value table” (T table = 2.262) or “significance > 0.05”. From table 4.25 showed that the t-values of systole, heart rate, cognitive anxiety, and self-confidence were under 2.262 or sig. (2-tailed) was above 0.05 (sig. > 0.05), which means that there was no difference between the mean value of systole, diastole, and heart rate. Therefore, H0 was accepted. Whereas the t-value of diastole, somatic anxiety, and badminton performance is above 2.262 or sig. (2-tailed) was below 0.05 (sig. < 0.05), which means that there was a difference between the mean value of systole, diastole, and heart rate. Therefore, H0 was rejected.

This table also shows the results of pre-test and post-test overall variable of the control group which includes that the mean

of systole before and after yoga treatment were rising (x=6.6; 5,83%). Diastole increased mean as much as 6.3 or 8.76%. Mean of heart rate increased (x=9.5; 11.20%). The mean of cognitive anxiety decreased (x=0.20; 2.19%). Somatic anxiety experienced a mean reduction (x=1.70; 17.71%). Self-confidence increased (x=0.30; 1.99%). The mean value of badminton performance decreased (x=3.283; 17.23%).

We used analysis of the gain index to test the effectiveness of yoga for badminton in the experimental group and the comparison, the control group. The table below is the output from SPSS 19.00 which showed the interaction.

Table 3. shows the value of the index gain of experimental and control groups before and after treatment. Systole variables reported a change of mean in the yoga group (experimental group) (x=2.50; -2.14%), and so did the control group (x=6.60; 5.83%). It means that after yoga treatment, the experimental group experienced a decrease that is not remarkable in systole of blood pressure; inversely proportional to the control group who experienced an increase in systolic blood pressure at the time before the competition.

Diastolic blood pressure variables were not significantly different before and after treatment in the experimental group (x=-0.80; -0.01%). The control group experienced an increase in mean value (x=6.30; 8.76%).

Table 3. Index Gain Between Experiment and Control Groups

Item	Group	Mean differences	Std. Deviation	% Change
Systole	Yoga	-2.50	10.80381	-2.14
	Control	6.60	15.67872	5.83
Diastole	Yoga	-.80	10.47537	-0.01
	Control	6.30	8.81980	8.76
Heart rate	Yoga	10.50	18.80455	12.39
	Control	9.50	21.13580	11.20
Cognitive Anxiety	Yoga	-2.10	2.23358	-21.21
	Control	-.20	2.04396	-2.19
Somatic Anxiety	Yoga	-3.50	2.54951	-26.92
	Control	1.70	2.35938	17.71
Self Confidence	Yoga	2.00	2.49444	12.35
	Control	-.30	4.05654	-1.99
Badminton Performance	Yoga	2.45	2.66860	14.67
	Control	-3.28	4.08188	-17.23

Source : Primary Data

Negative sign indicates a decrease and a positive sign indicates an increase, so the yoga group experience decreased and the control group experience increased in diastolic and blood pressure variables.

There was significant improvement in both groups regarding heart rate, the yoga group increased ($x=10.50$; 12.39%), control group also increased ($x=9.50$; 11.19%). Cognitive anxiety item on the yoga group decreased ($x=-2.10$; -21.21%), and also did the control group ($x=-0.20$; -2.19%). Somatic anxiety symptoms were similar to yoga group ($x=-3.50$; -26.92%), but not for the control group, which increased ($x=1.70$; 17.71%). Self-confidence had a negative correlation to other variables, whereas the yoga group increased ($x=2.00$; 12.35%) and the control group decreased ($x=-0.30$; -1.99%). The last was badminton performance, yoga group increased ($x=2.40$; 14.67%) and the control group decreased ($x=-3.283$; -17.23%). The picture below is presented a graph of the above calculations.

Figure 1 illustrated the comparison of the effectiveness of experiment/yoga group before and after treatment with the control group. Yoga group experienced an increase in the following aspects: heart rate; self-confidence; and badminton performance, but a decrease

in the following aspect: systolic; diastolic; cognitive anxiety; and somatic anxiety. While the control group experienced an increase in the following aspects: diastolic; heart rate; and somatic anxiety, and decrease in the following aspect: systolic; cognitive anxiety; self-confidence; and badminton performance. From the various kinds of data, we concluded that the experimental group had a significant change compared to the control group, so treatment with yoga for badminton exercises managed to reduce anxiety and improve badminton athlete's performance.

The testing phase is doing yoga for competitive badminton in reducing anxiety in badminton athletes. To minimize threats to internal validity, some efforts are made such as; make the same competition twice (pre-test and post-test), quasi-experimental with two groups (experimental and control groups), using the instrument competitive anxiety (CSAI-2R), blood pressure (systolic, diastolic, and heart rate), and badminton performance test.

We observed that the mean of systole variables changed in the yoga group (experimental group) ($x=-2.50$; -2.14%), and the control group also experienced a change ($x=6.60$; 5.83%). It means that after yoga treatment, the experimental group experienced

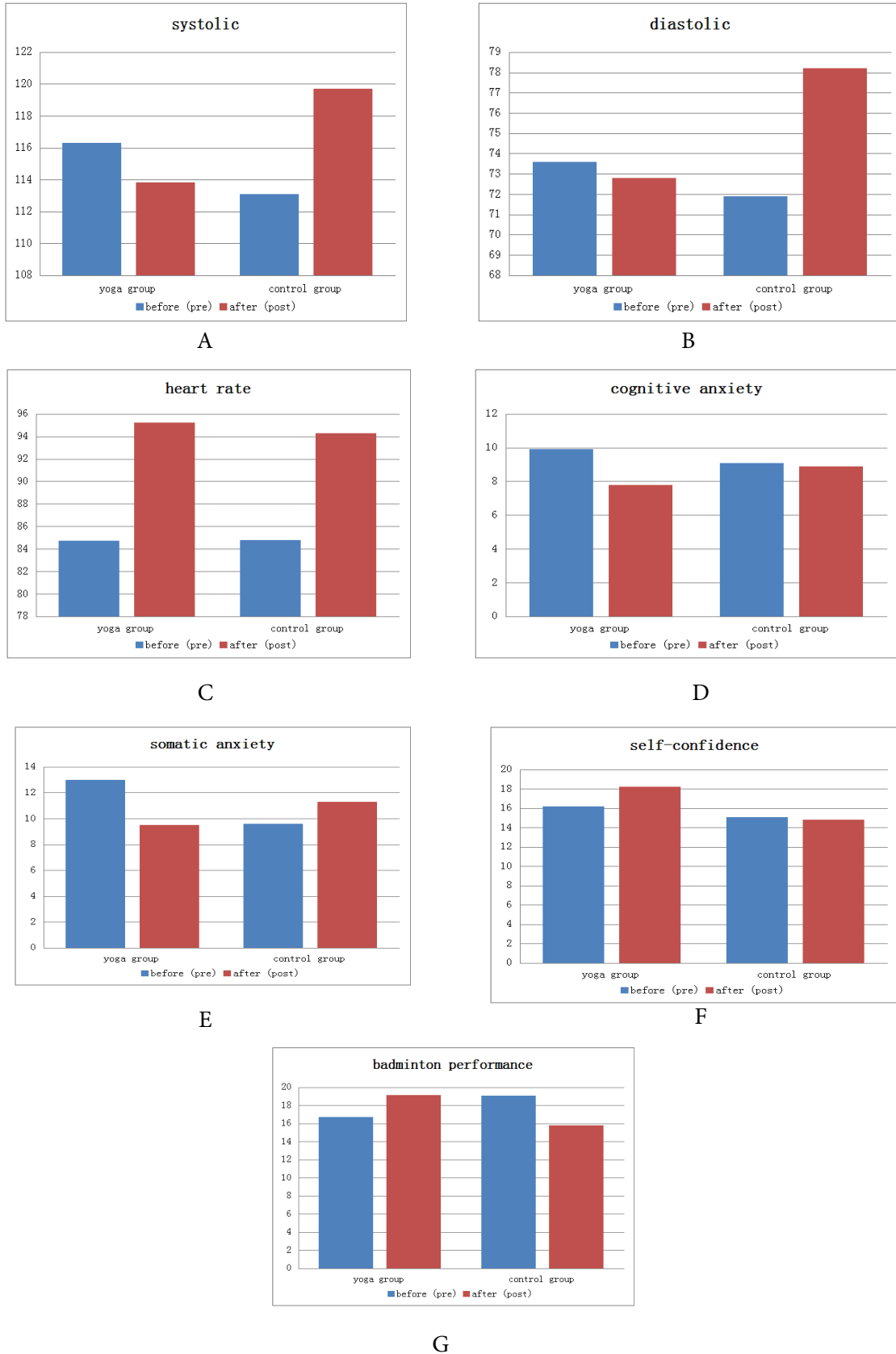


Figure 1: Different in Scores (Mean) of (A) Systolic, (B) Diastolic, (C) Heart Rate, (D) Cognitive Anxiety, (E) Somatic Anxiety, (F) Self-Confidence, and (G) Badminton Performance, Before and After of Experiment and Control Groups.

a decrease that is not remarkable in systolic blood pressure, and was inversely proportional to the control group who experienced an increase in systolic blood pressure at the time before the competition. Diastolic blood pressure variables were not significantly different before and after treatment in the experimental group ($x=-0.80$; -0.01%). In the control group experienced an increase in the mean value ($x=6.30$; 8.76%). Negative sign indicates a decrease and a positive sign indicates an increase, so the yoga group was experience decreased and the control group was experience increased in diastolic and blood pressure variables. There was significant improvement in both groups of heart rate, the yoga group increased ($x=10.50$; 12.39%), control group also increased ($x=9.50$; 11.19%).

Understanding blood pressure on a person's level of anxiety is very varied, it had been argued if someone is experiencing anxiety, blood pressure will rise. Blood pressure increases and decreases depend on nutrition, sleep, motion, and perceived stress. Increased heart rate is one of the contributors to the increase in blood pressure. When experiencing anxiety, heart rate would increase, it is possibly to pump blood to the part of the body that need to fight or flee when threatened. But the increase in cardiac output causes an increase in blood pressure which raises systolic blood pressure, while diastolic is generally unaffected. Based on the statement above, we concluded that blood pressure fluctuates randomly throughout the day because of power, diet, hydration, and more. Blood pressure is not constant even if a person does not have any anxiety. Heart rate and blood pressure have a tendency to be related with anxiety. Adjust blood pressure with anxiety, which will eventually return to the base level. Changes in blood pressure have a tendency to be high in the short term, and usually occur in the early stages of anxiety or during a panic attack. One indicator of a person's anxiety is by the increasing blood pressure of that person, but we still need another instrument which can indicate the level of anxiety of a person.

Cognitive anxiety item on the yoga group decreased ($x=-2.10$; -21.21%), and the control group also felt ($x=-0.20$; -2.19%). Somatic anxiety symptoms similar to yoga group ($x=-3.50$; -26.92%), but not for the control group,

which increased ($x=1.70$; 17.71%). Whereas self-confidence has a negative correlation to other variables, the yoga group increased ($x=2.00$; 12.35%) and the control group decreased ($x=-0.30$; -1.99%). The last was badminton performance, yoga group increased ($x=2.40$; 14.67%) and the control group decreased ($x=-3.283$; -17.23%).

Multidimensional theory stated that it is necessary to distinguish between cognitive anxiety and somatic anxiety, so the measurement must also be different (Martens, 1990). The relationship between cognitive anxiety and somatic anxiety are positive, i.e. if the cognitive anxiety increases, somatic anxiety increased, and vice versa. Another item is that self-confidence has a negative correlation with cognitive anxiety and somatic anxiety. The entire item (cognitive anxiety, somatic anxiety, self-confidence) was an indicator in determining an athlete's level of competitive anxiety (Cox et al., 2007; Hanton, 2009).

The result of this study was about the relationship between anxiety and sport performance. Instead they pointed out that when the athlete is experiencing high cognitive anxiety (i.e. they are worried), then a small increase in arousal beyond the optimum level can bring about a massive fall-off in performance. Under conditions of low cognitive anxiety, (i.e. when the athlete is not particularly worried), the inverted U hypothesis holds true. However, when cognitive anxiety is high, there comes a point just above the optimum level of arousal where performance drops sharply. It is also associated with fluctuations of the heart rate, that under conditions of low cognitive anxiety the results showed a weak inverted U, whereas under high cognitive anxiety, performance peaked considerably higher but then dropped off quickly. This supports the catastrophe model.

The catastrophe model is more complex than the inverted U hypothesis and offered a more sophisticated understanding of the relationship between arousal and performance. The major practical application of the model is in showing that cognitive anxiety is not necessarily an enemy of performance, but under certain circumstances, it is beneficial (Fletcher, 2009). This fits in with the results of

interviews by Vincent (2015), which found that many athletes reported that they performed best when worried. However, there have been criticisms of the model. Gaines (2008), proposed that it is essentially too complex to be entirely testable. Some researchers, such as Martens (Cox, 2007), have disputed the idea that cognitive anxiety, somatic anxiety, and self-confidence can improve performance. Badminton performance testing between the yoga group and control group showed that the yoga group reported a significant increase in performance than the control group.

Conclusion

Yoga for badminton has been performed in this study by badminton athletes very easily, because the movements and exercises offered are adapted to the athlete's character and badminton themselves. Movement or yoga poses are almost similar to the stretching and warming-up movement athletes usually do, just add some more specific modifications movement for badminton. Yoga for badminton is also accompanied by a video and guidebook in doing so, what preparation, and what to do. With the book and the video, it will add discretion to athletes in the practice of yoga, because it is not rooted by time, and can be done anywhere and anytime.

Badminton performance testing between the yoga group and control group showed that the yoga group reported experiencing a significant increase in performance than the control group. Yoga group experienced an increase in the following aspects: heart rate; self-confidence; and badminton performance, while a decrease in the following aspects: systolic; diastolic; cognitive anxiety; and somatic anxiety. While the control group experienced an increase in the following aspects: diastolic; heart rate; and somatic anxiety, and a decrease in the following aspects: systolic; cognitive anxiety; self-confidence; and badminton performance. From the various kinds of data, we concluded that the experimental group had a significant change compared to the control group, so treatment with yoga for badminton exercises managed to reduce anxiety and improve badminton athlete's performance.

Acknowledgements

We would like to thanks Universitas

Negeri Semarang, Central China Normal University, Badminton Federation of Semarang (PBSI Semarang) for all support.

References

- Alison Wood Brooks. 2013. Get Excited: Reappraising Pre-Performance Anxiety as Excitement. *Journal of Experimental Psychology: General* 2014, 143 (3): 1144–1158
- Andrew Peden. 2009. Breathing to Manage Anxiety in Tennis. *ITF Coaching and Sport Science Review*, 16 (49): 17 – 18.
- Ashwani Bali. 2015. Psychological Factors Affecting Sport Performance. *International Journal of Physical Education, Sports and Health*. 1(6): 92-95
- Caroline Smith, Heather H, Jane Blake-M, Kerena E. 2006. A Randomised Comparative Trial of Yoga and Relaxation to Reduce Stress and Anxiety. *Elsevier Ltd . Complementary Therapies in Medicine*, 15: 77—83
- Cox, R. H. 2007. Sport Psychology: Concepts and Applications. 7th Ed. *McGraw-Hill*. United States
- Fabrizio Coppola, & David Spector. 2009. Natural Stress Relief Meditation As A Tool For Reducing Anxiety And Increasing Self-Actualization. *Social Behavior And Personality*, 37(3), 307-312
- Fletcher, D., Hanton, S., and Mellalieu, S. D. 2009. An Organizational Stress Review: Conceptual and Theoretical Issues in Competitive Sport in S. Hanton and S. D. Mellalieu (Eds.), *Literature reviews in sport psychology*. Hauppauge, NY: Nova Science.
- Gaines T., Barry L.M. 2008. The Effect of a Self-Monitored Relaxation Breathing Exercise on Male Adolescent Aggressive Behavior. *Adolescence*, 43(170), 291-302.
- Hanton. S & Mellalieu S.S. 2009. Advances in Applied Sport Psychology: A Review. *Routledge*. USA
- Hala Nabil Yahiya. 2010. Impact of Hatha Yoga Exercise on Some of the Physiological, Psychological Variables and the Level of Performance in Judo. *Journal procedia social and behavioral sciences*. Elsevier Ltd.5 : 2355-2358.
- LaMeaux. 2011. How Does Yoga Help Athletes? Benefits and Suggestions for Incorporating Yoga in Your Active Lifestyle. <http://life.gaiam.com/article/how-does-yoga-help-athletes>
- Sheng-Chia Chung, et al. 2012. Effect of Sahaja Yoga Meditation on Quality of Life, Anxiety, and Blood Pressure Control *The Journal of Alternative and Complementary Medicine*, 18, (6) : 589–596

- Shirley Archer. 2009. Benefits of Yoga Breathing. *Annals of the New York Academy of Sciences* 1172 : 54-62
- Sholihatul Maghfirah, I Ketut Suidiana, Ika Yuni Widyawati. 2015. Relaksasi Otot Progresif Terhadap Stres Psikologis Dan Perilaku Perawatan Diri Pasien Diabetes Mellitus Tipe 2. *Jurnal Kesehatan Masyarakat (KEMAS)*, 10 (2)
- Tanti A Kesoema, Shofa. C, Rudy H. 2016. Comparison Between Taichi Chuan and Jacobson's Progressive Muscular Relaxation in Decreasing Cortisol Concentration on Pre-Hypertension Patients. *Jurnal Kesehatan Masyarakat* 12 (1), 52-59
- Vincent Parnabas. 2015. The Effect of Competitive State Anxiety on Sport Performance among Sepak Takraw Athletes. *The International Journal of Indian Psychology*, 2
- Walton, K.G., Schneider, R.H., & Nidich, S. 2004. Review of Controlled Research on the Transcendental Meditation Program and Cardiovascular Disease. *Risk factors, Morbidity, and Mortality. Cardiol Rev*, 12(5), 262-266.
- Yago Ramis, Carme Viladrich, Catarina Sousa and Caroline Jannes. 2015. Exploring the Factorial Structure of the Sport Anxiety Scale-2: Invariance Across Language, Gender, Age and Type of Sport. *Psicothema*, 27 (2) 174-181 doi: 10.7334/psicothema2014.263