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The Effectiveness of Five Minutes Callisthenic Exercise on Depression, Anxiety and Stress Levels among Form Four Students

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Abstract Sports management in schools is essential to meet the requirements of sports such as implementation of the One Pupil One Sports Policy (1M1S) which requires every student to participate in at least one sports activity in school. The study aims to identify the effectiveness of five minutes Calisthenics exercise on the depression, anxiety, and stress levels among Form Four students. A total of 180 Form Four students in City Setar district secondary schools were examined using quasi experimental method. Depression, Anxiety and Stress Scale (DASS) instrument was used for pre and posttests for eight weeks. The data were analyzed using the Multivariate Analysis of Variance (MANOVA) and Multivariate Analysis of Covariance (MANCOVA) to see the relationship between Calisthenics exercises and mental health levels of depression, anxiety and stress in pre and posttests of treatment and control groups. Overall, multivariate test results with wilks' Lambda showed that there were significant effects on the three dependent variables [F (6,524) = 2.20, $p < 0.05$) for posttest and pretest [F (6,262) = 13.95, $p < 0.05$). The findings showed that students who practice five minutes Calisthenics exercise can reduce depression, anxiety, and stress levels. In conclusion, the study showed that there is a significant relationship between five minutes Calisthenics exercise and depression, anxiety, and stress levels. Female gender had higher depression, anxiety, and stress levels in both tests. Also, the main conclusion is the pretest analysis showed a high level of anxiety, depression, and stress among the two groups but did not show a significant difference.

Keywords Anxiety, Calisthenics Exercise, Depression, Stress, Form Four Students

1. Introduction

Sports management in schools is essential to meet the requirements of sports such as implementation of the One Pupil One Sports Policy (1M1S) which requires every student to participate in at least one sports activity in school

[1]. Through effective sports management in schools, the talent of the pupils can be discovered and developed through active participation in sports activities. Therefore, Sports management in primary schools is important to develop the pupils' potential and produce pupils who are physically, emotionally, and spiritually balanced to achieve Malaysia Philosophy of Education. Besides, sports management is also important to fulfill Malaysian Education Development Plan 2013-2025 so that pupils can be educated and developed holistically by participating actively in club, sports, or uniformed unit body. In addition, sports management will also influence the effectiveness in achieving the new curriculum learning objectives in line with introduction of Primary school Standard-Based Curriculum (KSSR) in 2011.

Mental health is very important in every phase of human life. Mental health can affect everyday life, and more importantly, the future of a person, especially children and adolescents. Protecting mental health of children and adolescents is a very important factor in helping better individual development in the future. Based on [2], approximately 450 million people worldwide are diagnosed with certain mental disorders such as depression, schizophrenia, and bipolar disorder. This situation will become more serious by 2020 as mental illness is expected to represent 15 percent of global illnesses.

The same goes to the situation in Malaysia. Mental health problems have increased by 15.6% or 400,227 people compared to 2009. By 2020, depression symptoms are expected to rank second in terms of burden of illness after heart disease [3]. That mental illness in the country is increasing, as more individuals seek treatment for problems ranging from mild mental disorders to severe schizophrenia [4]. According to the statistic in [5], there were 379,010 individuals sought treatment as psychiatric outpatients in government hospitals compared to only 324,344 in 2007. Also, in [4], showed that more teenagers suffer from mental health problems. The survey showed that 19.5% were of the age group 70 to 74 and 14.4% were of the youngest group of 16 to 19 years old.

In addition, mental health problems among Malaysians are at an alarming rate. According to the statistics released by the National Health and Morbidity Study [4], about 30% or 4.2 million Malaysians over 16 years old suffer from mental health problems. Of the 6,540 screened students, 17.1% had severe anxiety symptoms, 5.2 percent had severe depression and 4.8% suffered from severe stress. Out of the total students screened, 2,345, i.e., 36% had participated in mental health skills training intervention.

Many studies have shown that there is a relationship between physical activity and better mental health, lower risk for psychological stress and prevention of mental health problems [6]-[8]. This study was conducted to identify the effectiveness of five minutes Calisthenics exercise on depression, anxiety and stress levels based on gender among Form Four students. Although many of the above studies prove the positive impact of Calisthenics exercise on the effectiveness of treating mental illness but in Malaysia, there is too less studies on the relationship between Calisthenics exercise and mental health. Hence, a study is needed to investigate the effectiveness of Calisthenics exercise among Malaysians especially among school students. This study intends to investigate the effectiveness of five minutes Calisthenics exercise on the depression, anxiety, and stress levels of Form Four students.

The implementation of this study was based on the following objectives:

1) To identify the significant difference between depression, anxiety and stress levels between treatment group and control group for pretest by gender.
2) To identify the significant difference between depression, anxiety and stress levels between treatment group and control group for posttest by gender.

2. Methodology

The study used a quasi-experimental design (equivalent group pre-posttest) involving pre and posttests [9]. The sample consisted of 180 Form Four students aged 16 years from three secondary daily schools in the district of City Setar, Kedah. The selection of school was done randomly based on location, level of academic achievement and number of students based on the recommendation of City Setar District Education Office. For each selected school, 30 people in one class were recruited as treatment group while another 30 in one class were used as control group with intact sampling technique. Intact sampling technique was selected to avoid problems or interruptions in classroom management that have been set by school administrators. The control group and treatment group were determined by simple random sampling technique. Our hypothesis is that the pretest analysis does not affect high levels of anxiety, depression, and stress.

2.1. Instrument of Study

In this study, the researcher used an instrument adapted from the Depression, Anxiety, Stress Scale 42 (DASS 42) instrument to assess students' mental health levels of depression, anxiety, and stress. The selection of DASS 42 is because the instrument was designed not only to measure the emotional level but to further process for understanding, comprehending, and measuring emotion status significantly that is often described as stress. DASS can be well-used by groups or individuals for research purposes [10].

Each subject involved were given pretest. They will respond to Depression, Anxiety, Stress Scale 42 (DASS 42) instrument. For the treatment group, they went through five minutes Qigong exercise every morning before the starting

of teaching and learning activities and after the recess time. The process was guided by the Qigong exercise video provided by the researcher which is presented in front of the class using the Liquid Crystal Display (LCD) projector. This exercise video was shown by the subject teacher who enters the class during the first period of class and during the first period after recess throughout the week for eight weeks. Meanwhile, the control group underwent conventional eight weeks classes.

2.2. Validity and Reliability of DASS 42 Instrument

The past studies showed that the validity and reliability of the DASS 42 instrument were at high Cranach's Alpha value. Among these were studies in [11], who reported that the validity and reliability for depression 0.94, anxiety 0.90 and stress 0.87. For this study, the researchers conducted a pilot study and the Cronbach Alpha value was depression 0.82, anxiety 0.90 and stress 0.93.

Permission to conduct the study was obtained from the Education Planning and Research Division, Malaysia Ministry of Education, then from the State Education Department, the District Education Department, and the school principals. Parental consent was obtained first because all subjects are underage. Information regarding the implementation of the study was provided to all students and form teachers. After the explanation was given, all subjects were given a pretest.

After the pretest, the treatment group carried out Qigong exercise for five minutes before starting the first lesson every morning and before starting the first lesson after the recess time for eight consecutive weeks. The control group was not given any intervention and attended classes as usual. After eight weeks of intervention, posttest was administered to both groups and data were collected for further action.

3. Results and Discussion

Statistical Package for Social Science (SPSS) 22.0 software was used to assist in the analysis of data collected from pre-post student questionnaires [12]-[14]. Based on ref [15], analyzing statistical data using this software can produce fast and accurate calculations. Multivariate Analysis of Variance (MANOVA) was used to assess the effectiveness of Qigong exercise on the mental health levels of depression, anxiety, and stress in pre and posttests of treatment group and control group by gender among from Four students in the district of City Setar, Kedah [16]-[17]. The findings of the study can be seen in Table 1.

Table 1 shows that there was a significant main effect of gender independent variable [F (3,266) = 17.88, p <.05)] on all three dependent variables, namely depression, anxiety and stress in pretest.

Table 1. MANOVA Analysis of Gender Independent Variable on Depression, Anxiety and Stress Levels Dependent Variables for Pre-Multivariate Test

		Value	F	Hypothesis df	Error df	Sig.
Gender	Wilks' Lambda	.855	14.984b	3.000	266.000	.000

Table 2. Levene's Test of Equality of Error Variance

	F value	Df1	Df2	Sig.
Depression	.149	1	268	.700
Anxiety	2.368	1	268	.125
Stress	.026	1	268	.872

Table 3. Tests of Between-Subjects Effects

	Dependent Variable	Type III Sum of squares	df	Mean Square	F Value	Sig.
Gender	Depression	30.670	1	30.670	40.886	.000
	Anxiety	4.281	1	4.281	6.113	.014
	Stress	2.315	1	2.315	4.799	.029

a. R Squared = .132 (Adjusted R Squared = .129)

b. R Squared = .022 (Adjusted R Squared = .019)

c. R Squared = .018 (Adjusted R Squared = .014)

The researcher used the Levene's Test of Equality of Error Variances to see the variance similarity for each of the dependent variable categories studied. When the mean value obtained is less than 0.05 ($p < 0.05$), then it indicates that there are significant differences in the dependent variables. On the other hand, if the significant value obtained is greater than 0.05 ($p > 0.05$), then it shows no significant difference in the dependent variables tested [18].

Table 2 shows the value of Levene's test for the three dependent variables studied. The Levene test was used to test whether the variance of the dependent variable across categories in the independent variable is the same. Test results show that the three dependent variables yielded significant results at $p > 0.05$, anxiety $p = 0.700$, depression $p = 0.125$ and stress $p = 0.872$. Indirectly, these results indicated that all of the dependent variables are equal to the variance and do not violate the assumption of the MANOVA test.

The results of the analysis in Table 3 of tests of between-subjects effects show that in overall, there was a main effect of gender and group categories on the three dependent variables. The main effects of each dependent variable can be identified in Table 3 Tests of Between-Subjects Effects enabled a more detailed examination of the significant differences between genders in each dependent variable. The results of the analysis showed that gender was a factor in depression [$F(1,268) = 40.9$, $p < 0.05$] and anxiety [$F(1,268) = 6.11$, $p < 0.05$]. However, the results showed that there was no significant main effect of gender on stress [$F(1,268) = 4.79$, $p > 0.05$].

The R^2 values in Table 3 indicated that gender contributed only 0.132 or 13.2% change on the dependent variable of depression. For the dependent variable of anxiety, gender contributed only 0.022 or 2.2%, and gender contributed only 0.018 or 1.8% to the dependent variable of stress.

In overall, the results of the multivariate wilks 'Lambda test showed that there was a gender effect on all three dependent variables [$F(3,266) = 17.88$, $p < 0.05$)]. Based on the results of this analysis, it shows that gender is a factor for depression, anxiety, and stress in Form Four students' mental health.

The analysis of the MANOVA test revealed that there was a significant difference between genders in the dependent variable of depression [$F(1,268) = 2.64$, $p < 0.05$] and anxiety [$F(1,268) = 40.9$, $p < 0.05$] and stress [$F(1,268)) = 4.79$, $p > 0.05$]. These results indicate that the gender of the students in the study affected depression, anxiety, and stress.

By referring to the mean values of each dependent variable on the gender of the male and female students, it was found that female students experienced more depression, anxiety, and stress. Depression (female mean score = 19,719; male = 19,044), anxiety (female mean score = 17,319; male = 17,067) and stress (female mean score = 22,444; male = 22,259) were compared with the male group.

However, gender factors contributed only 13.2% to depression, 2.2% to anxiety and 1.8% to stress.

The results of the Wilks' Lambda multivariate test showed that there were significant main effects of group and gender variables on all three dependent variables in the study $F(6,524) = 2.20$, $p < 0.05$). Therefore, the researcher reported that gender and group are factors in all three aspects of mental health, namely depression, anxiety and stress.

3.1. The Anxiety, Depression and Stress Levels between the Treatment Group and the Control Group for Posttest by Gender

Table 4 shows the linear relationship between groups and anxiety for posttest. Based on the value of Deviation from Linearity Sig. is 0.521 greater than 0.05. It can therefore be concluded that there is a significant linear relationship between groups and anxiety for posttest.

Table 5 shows the linear relationship between groups and depression for posttest. The value of Deviation from Linearity Sig., 0.481 is greater than 0.05. It can therefore be concluded that there is a significant linear relationship between groups and depression for posttest. Once all assumptions in the MANCOVA analysis are followed, then only the MANCOVA analysis can be done. Table 6 is the steps for the MANCOVA test.

Table 6 shows the number of samples used in this study. There are two gender groups, male and female. The sample involved in this study was 270 people, which is 135 male and 135 female. Since the sample size used is over thirty people, so the study data is considered normal.

Table 7 shows the mean values, standard deviations, and sub-sample sizes of the three dependent variables across the two gender categories for posttest. The aspect of depression shows higher mean values among female students compared to male students (mean: female = 19.47, male = 18.65). For posttest of anxiety, it shows higher mean values among female students compared to male students (mean: female = 16.96, male = 1670) and finally the post test for stress shows female mean score over male students (mean = 22.44, male = 22.10).

The Box's M test was also performed to see the homogeneity of variance-covariance matrices. Table 8 shows the results of the Box's M test to determine the homogeneity of variance-covariance matrices.

Table 4. Linear Tests between Gender and Anxiety for Post Test

			Sum of Squares	df	Mean Square	F	Sig.
Gender * Anxiety	Between Groups	(Combined)	2.365	4	.591	2.406	.050
		Linearity	1.810	1	1.810	7.362	.007
		Deviation from Linearity	.555	3	.185	.753	.521
	Within Groups		65.135	265	.246		
	Total		67.500	269			

Table 5. Linear Testing between Gender and Pressure for Post Test

			Sum of Squares	df	Mean Square	F	Sig.
Gender * Stress	**Between Groups**	(Combined)	4.498	4	1.125	4.730	.001
		Linearity	3.909	1	3.909	16.444	.000
		Deviation from Linearity	.589	3	.196	.825	.481
	Within Groups		63.002	265	.238		
	Total		67.500	269			

Table 6. Between-Subject Factors

		Label of Value	N
Gender	1	Male	135
	2	Female	135

Table 7. Overall Descriptive Statistics of Anxiety, Depression and Stress between Gender of Treatment Group and Control Group for Pre and Post Test

	Gender	Mean	Standard Deviation	N
Depression	Male	18.65	.840	135
	Female	19.47	.862	135
	Total	19.06	.943	270
Anxiety	Male	16.93	.816	135
	Female	17.19	.796	135
	Total	17.06	.816	270
Stress	Male	22.10	.721	135
	Female	22.44	.687	135

Table 8. Exam Box's Test of Equality of Covariance Matricesa

Box's M	F Value	Df1	Df2	Sig.
31.623	1.470	21	264168.555	.076

Table 8 shows the results of the Box's M test were not significant at $p > 0.05$, $p = 0.076$. This indicates that the data meet the covariance similarities of the MANCOVA test, which in the sample variance study of the three dependent variables across the independent variables is similar in population. Hence, this data does not violate the assumption and the above hypothesis can be tested using the MANCOVA test. Subsequently, the Levene's Test of Equality of Error Variances was run to see the variance similarity for each dependent variable category studied. When the significant value obtained is less than 0.05 ($p < 0.05$), then it indicates that there are significant differences in the dependent variables. On the other hand, if the significant value obtained is greater than 0.05 ($p > 0.05$), then the value shows no variance difference in the dependent variables tested.

Table 9 shows the value of Levene's test for the three dependent variables studied. The Levene test was used to

test whether the variance for the dependent variables across categories in the independent variable is the same. The test results show that the three dependent variables yielded insignificant results on posttest of depression p = 0.267, anxiety p = 0.883 and stress p = 0.226. Indirectly, this result indicates that all of these variables have equal variance and do not violate the assumptions of the MANCOVA test.

The results for the Wilks' lambda test in Table 10 show that there was a significant gender independent gradient effect [F (6,262) = 13.95, p <.05). Based on this decision, the researcher rejected the null hypothesis and concluded that gender was a factor in depression, anxiety and stress among Form Four students.

The results in Table 11 indicate that there was a significant gender effect on all three dependent variables in the post test. The results show that there was a significant effect of gender on the three dependent variables in the study, namely depression [F (1,267) = 65.4, p < 0.05], anxiety [F (1,267) = 7.62, p < 0.05] and stress [F (1,267) = 16.85, p < 0.05]. Whereas the R^2 values below the table indicate that the gender independent variables for posttest, depression, accounted for 0.142 or 14.2 percent, 0.026 or 2.6 percent for anxiety and 0.025 or 2.5 percent for stress.

Table 12 shows the mean values of the gender independent variable across each dependent variable for posttest. Referring to the table above, it was found that female gender showed a higher mean value for depression dependent variable than male (mean score: female = 19.467[a], male = 18.652[a]). For dependent variable of anxiety, female gender showed a high mean score (mean score: female = 17.193[a], male = 16.926[a]). Meanwhile, the dependent variable of stress showed mean value (mean score: female = 22.444[a], male = 22.096[a]).

The results of the Wilks' Lambda multivariate test showed that in overall, there was a significant gender independent variable [F (6,262) = 13.95, p < 0.05) among the three dependent variables: depression, anxiety and stress for Form four students in the City Setar district for the application of exercise. Subsequent analysis showed that there was a significant gender effect on the three dependent variables in the post test that showed a significant effect of gender on the three dependent variables in the study, namely depression [F (1,267) = 65.4, p < 0.05], anxiety [F (1,267) = 7.62, p < 0.05] and stress [F (1,267) = 16.85, p < 0.05]. Meanwhile, the R^2 values below the table indicate that the gender independent variable for depression posttest was 0.142 or 14.2 percent, 0.026 or 2.6 percent for anxiety and 0.025 or 2.5 percent for stress.

Table 9. Results of Levene's Test of Equality of Error Variance

	F value	Df1	Df2	Sig.
Depression	1.237	1	268	.267
Anxiety	.022	1	268	.883
Stress	1.473	1	268	.226

Table 10. Multivariate Test

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.997	12821.409b	6.000	262.000	.000
	Wilks' Lambda	.003	12821.409b	6.000	262.000	.000
	Hotelling's Trace	293.620	12821.409b	6.000	262.000	.000
	Roy's Largest Root	293.620	2821.409b	6.000	262.000	.000
Set	Pillai's Trace	.105	5.147b	6.000	262.000	.000
	Wilks' Lambda	.895	5.147b	6.000	262.000	.000
	Hotelling's Trace	.118	5.147b	6.000	262.000	.000
	Roy's Largest Root	.118	5.147b	6.000	262.000	.000
Jantina	Pillai's Trace	.242	13.949b	6.000	262.000	.000
	Wilks' Lambda	.758	13.949b	6.000	262.000	.000
	Hotelling's Trace	.319	13.949b	6.000	262.000	.000
	Roy's Largest Root	.319	13.949b	6.000	262.000	.000

Table 11. Tests of Between-Subjects Effects

	Dependent Variable	Type III Sum of squares	df	Mean Square	F Value	Sig
Gender	Depression	44.815	1	44.815	65.390	.000
	Anxiety	4.800	1	4.800	7.619	.006
	Stress	8.181	1	8.181	16.854	.000

a. R Squared = .142 (Adjusted R Squared = .136)

b. R Squared = .026 (Adjusted R Squared = .019)

c. R Squared = .025 (Adjusted R Squared = .017)

Table 12. Estimated Marginal Means

Dependent Variable	Gender	Min Error	Std.	95% Confidence Interval	
				Lower Bound	Upper Bound
Post-depression	Male	18.652a	.071	18.512	18.792
	Female	19.467a	.071	19.326	19.607
Post anxiety	Male	16.926a	.068	16.791	17.060
	Female	17.193a	.068	17.058	17.327
Post stress	Male	22.096a	.060	21.978	22.214
	Female	22.444a	.060	22.326	22.563

However, there were also effects of group control variables on all three dependent variables [F (6,262) = 5.15, $p < 0.05$). The results show that in overall, by controlling the group variable, gender is a factor in mental health levels of depression, anxiety, and stress among secondary school Form Four students. The results of the analysis also indicate that the gender independent variables for depression posttest were 0.142 or 14.2 percent, 0.026 or 2.6 percent for anxiety and 0.025 or 2.5 percent for stress.

The findings show that there is a significant difference in the formation of depression, anxiety and stress in the treatment group and control group for pre and posttest. The results of the pretest analysis showed that there was a high level of anxiety, depression, and stress among the two groups and does not show a significant difference.

The results of the post test showed that there were significant differences in depression, anxiety and stress levels in the treatment group and the control group. The findings of this study have shown that exercising can reduce depression, anxiety, and stress. Likewise, the findings of Callisthenic exercise show that exercising can reduce depression [19]-[21]. In fact, the positive effects of exercise on the individual psychological aspects have been proven by scientific research [22]. The effects of exercising clearly explain how exercises reduce psychological symptoms related to stress and anxiety [23]. However, the concept of physiological and psychological combinations has been adapted and proposed in explaining the relationship interaction between mood changes and exercise.

Mental health problems make exercise and other physical activities one of the ways to overcome this problem [24]. The phenomena of obesity, sedentary illnesses and mental disorders make exercise and other physical activities one of the solutions of the problem. The scenarios of obesity, hypokinetic illnesses, mental disorders often make exercise and physical activities the main means of overcoming this problem [25]. People generally know the benefits brought by exercise and physical fitness. The most common comment is "our body sweat after playing sports or exercise activities can make us feel fresh, light, lose weight and so on".

Exercise has been shown to affect physical fitness and develop positive emotional intelligence [26]-[27]. Exercise at moderate intensity influences physiological mechanisms and biochemical changes such as reducing cortisol hormones, endorphins and monoamines. Positive mood enhancement is strongly associated with continuous exercise in the form of aerobics, even yoga and sword fighting. The effects of exercise have proven to be a positive emotional experience. Even the psychophysiological issue that triggers aggressive behavior in adolescents is understood in every single element. Exercise has been shown to repair abandoned emotions.

Exercise stimulates the production of neurotransmitters that positively affect psychological mood [28]. Exercise removes abandoned emotional states such as depression, anxiety, and stress [29]. At this young age, they should have been able to think rationally and have good emotions in various situations to build their own future. The bet is the future of the family, country, religion, and generation of Malaysians.

The physiological processes taking place in the human

body have a positive effect on the psychological aspects of the individual [30]. In this way, exercise and sport activities are often considered a factor in addressing mental health and life issues [31], mental issues [32] and mental [33]. Likewise, the role of hormones is said to be the cause of stress and life pressure. The effect of hormones to adolescence also has profound implications for thinking processes [34]. High levels of hormone over adults have a dramatic impact on a variety of personal problems.

The results show that the intensity of active pain is related to changes in cortisol levels and depression depending on the management of the intervention program conducted by the researcher. This study showed that the relationship of arousal and cortisol levels influence the psychological and physiological factors in pain and stress [35]. Most of the psychophysiological theories focus on identifying the effects of chemical changes in the body, hormones and psychological processes leading to an emotion. In order to understand how exercise activities, affect emotional change, physiological activities need to be explored clearly. Studies have shown that the autonomic nervous system, especially the cardiovascular system and the sympathetic nervous system stimulates the arousal of emotions [36]. Physiological activation is said to be due to emotion [37], the role of the hormone oxytocin and cortisol in the control of emotional stress named this relationship Natural History of exercise [38]-[39]. The theory of Specific Syndrome or General Adaptation Syndrome has discussion in ref [40]. "The nonspecific response of the body to any demand" which responds to two systems, namely the nervous system and the hormone system during sports and exercise has no visible psychological effect. The effects of exercise activity and reproductive organ maturity change the balance of emotional concentration in adolescents [41]. Studies on saliva have shown that the increase in activity of the automatic nervous system as a result of reproductive organ maturity reflects increasing levels of emotional arousal and not only causes stress on adolescents [42].

The findings of this study show that there is a difference between mental health and gender and is in line with the findings in [43], who suggested that Callisthenic exercise has a positive effect on stress treatment. This is because the practice of Callisthenic exercises has an emphasis on breathing. When the body and mind are at ease, the physical and mental functions of a person are much better with Callisthenic movements such as standing, doing correct movements, clearing thoughts and deep breathing. All of these physical activities help one to achieve good well-brewing and reduce mental and physical stress. This situation proves that the practice of Callisthenic exercise is useful in relieving symptoms of depression.

The findings of this study show that there is a significant difference between the genders in terms of mental illnesses of depression, anxiety and stress. The results of the pretest analysis in this study indicate that female gender has higher levels of anxiety, depression and stress than men. This finding is in line with the survey and psychiatrist reports that hospitalization rates for depression are more frequent among women compared to men [44].

Similarly, posttest findings show that there are significant differences between male and female genders in terms of depression, anxiety, and stress. Although depression, anxiety and stress levels decrease compared to pretest, female gender still showed higher levels compared to male gender.

Looking at the level of depression, there are studies showing that female gender is higher compared to male gender, including the findings in [45], in their study to explore the relationship between depression history, gender differences and stress by assessing stress activity. The study also showed that female groups from both groups reported greater negative effects on posttest compared to men.

Similarly, female gender had a higher depression rate per sample in overall compared to male gender [46]. Also, the women have higher rates of depression than men. Although these studies have shown higher levels of depression in women than men, there are there are still studies that cannot confirm the validity of this study and gender differences in depression are still not fully determined.

The female athletes have more cognitive anxiety compared to male athletes [47]. The findings of this study are further supported in [48], showing greater concern for female gender compared to male gender.

Next, the female physicians had twice as much risk of daily stress compared to their male colleagues [49]. In ref [50], they showed that male gender was found to be able to manage emotions better and women had more stress compared to men.

The researcher concludes that Form Four male and female students should be given five-minute Callisthenic exercise to reduce mental health disorders of depression, anxiety, and stress levels so that they can focus on lessons taught by the teachers and reduce the number of mentally illed patients in our country.

4. Conclusion

This study has proven the effectiveness of the Callisthenic exercise on the level of depression, anxiety and stress among Form Four students. 5 minutes of Callisthenic exercise during each school day reduced the depression, anxiety and stress levels among students. Although female students showed higher depression, anxiety and stress levels than male students in pre and posttests, both showed declination. As the practice of this exercise can reduce the level of depression, anxiety and stress among students, it is advisable for the school to implement it on a daily basis as this exercise does not involve any cost. Healthy body starts with a healthy mind and then students can focus on the lessons in schools.

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