

Effects of Swimming on Self-Esteem among Female College Students

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Abstract

This study aims to determine changes in the self-esteem levels of female college students in relation to their swimming skills. The results of the study were obtained from 141 female college students enrolled at the University of Kebangsaan Malaysia. Breaststroke was used in order to evaluate their swimming skills, whereas the Rosenberg Self-Esteem Scale (RSES) questionnaire was used to evaluate their self-esteem levels for experimental and control groups. The analysis and observations confirmed the correlation between the level of self-esteem experienced in the water and swimming skills. The results showed that learning how to swim increases the self-esteem among female college students. We suggest that taking up this activity might have benefits for students with low levels of self-esteem.

Keywords: self-esteem, swimming, female students

1. Introduction

An individual's positive feeling toward oneself may be referred to as "self-esteem" or "self-concept" (Auweele, Association, & Education, 1999; Liukkonen & Association, 2007; Tavakolizadeh, Abedizadeh, & Panahi, 2012). Academic, sport, and psychotherapeutic settings aim to develop positive self-esteem in every individual (Bahaeloo-Horeh & Assari, 2008). Various achievement behaviours are influenced by high self-esteem (Marsh & Hattie, 1996), which is associated with an enhanced well-being (Brook & Heim, 1991; Paradise & Kernis, 2002).

An overarching aim of any educational system is the enhancement of students' self-respect. Efforts should be made to widen the scope of activities that can contribute to an enhanced self-concept (Bahaeloo-Horeh & Assari, 2008; Tavakolizadeh et al., 2012).

Sports can effectively improve self-esteem (Douglas Coatsworth & Conroy, 2006). Studies indicate a positive relationship between general exercise and self-esteem (Bahaeloo-Horeh & Assari, 2008; Keikha & Siadat). The association between different sports and self-concept should be assessed separately because the type of sport moderates the effect of exercise on self-esteem (Spence, McGannon & Poon, 2005). Swimming is a sport pursued by many from various age groups. In the present study, we assess the effect of swimming on self-esteem and other factors that correlates with it such as anxiety and the quality of life among university students.

The current research is significant for two reasons. The significance of this study depends on determining the effects of swimming on self-esteem levels of female students. Helping students learn to swim can also enhance their self-esteem and improve their psychological health. Students can increase their self-esteem in their progress of learning how to swimming. The mental aspects are an important part of athletes. For example, if people have high self-esteem, they feel less depressed (Binsinger, Laure, & Ambard, 2006; Douglas Coatsworth & Conroy, 2006; Harter, 2001; Readdy & Ebbeck, 2012). Thus, learning how to swim may increase the students' self-esteem levels.

Low self-esteem are potentially linked to risk behaviours, such as abuse of substances (e.g., alcohol, cannabis, and other drugs), risky sexual behaviour, suicidal ideation and attempts, dieting, and other extreme weight control methods (Binsinger, et al., 2006; Laure, Binsinger, Ambard, Girault & Friser, 2005; Wild, Flisher, Bhana & Lombard, 2004). Young athletes compared with their inactive peers usually show higher self-esteem and lower levels of trait anxiety (Binsinger et al., 2006). To achieve the same objectives, physical activity is often an accessible and helpful instrument (Ekeland, Heian, Hagen & Coren, 2005). The results of this study will also be significant in motivating physical educators and parents to encourage students to participate in physical activities, especially swimming.

1.1 Importance of the Study

Psychological theories and models help researchers to identify the important factors involved in determining human behaviour and facilitate the understanding of a complex behaviour, such as physical activity (Marcus, King, Clark, Pinto, & Bock, 1996). Raglin (1990) and Marcus et al. (1996) in the health benefits of exercise, shows that physical activity offers numerous benefits for improved physical and psychological health. Exercise offers psychological benefits including improvements of self-esteem among subjects (Marcus et al., 1996; Raglin, 1990).

The division of self-esteem into sub-domains has been the basis of Sonstroem and Morgan (1989) multidimensional Exercise and Self-Esteem Model (EXSEM) (Lindwall & Hassmen, 2004; Spence et al., 2005). This model has been advocated as an important theoretical guide to employ for study and further advancement in understanding exercise and self-esteem. Moreover, it has been noted that employing the EXSEM to study self-esteem in the physical activity domain will provide researchers with examinations of processes and pathways (i.e., mechanisms) that relate to changes in self-esteem (Spence et al., 2005). Then, in this study, the EXSEM is based on a multifaceted hierarchical model of self-esteem.

2. Method

Participants of this study consisted of 141 undergraduate female students from 20 to 30 years old and currently studying at the Universiti Kebangsaan Malaysia (UKM). They were selected as volunteer participants from different faculties without any knowledge about swimming. They were randomly divided into two groups, namely, experimental (69 subjects) and control (72 subjects) groups. The experimental group participated in a swimming learning course held at the UKM swimming pool from September to November 2012. During the swimming course, the experimental group learned how to swim in the water, dive, and do the breaststroke. Most of the students from the experimental group learned all the materials of the swimming course.

The swimming course was held for 2 hours per session, covering 20 sessions in 10 weeks for that semester. In this research, the sample size suggested 128 subjects (with each group having 64 subjects), obtaining a rate of 80% in the power test and an alpha value of 0.05, which was calculated using estimation G-power Software version 3.0.10.

2.1 Administration of Questionnaires

The Rosenberg Self-Esteem Scale (RSES) questionnaires were completed by all the students of both groups (experimental and control) on the first day before starting the swimming course and on the last day as part of the post-test procedure.

The Rosenberg's Self-Esteem Scale (RSES) may be the most widely used measure of self-esteem in social science research. The questionnaire consists of 10 questions; the higher the score obtained, the higher the self-esteem (Rosenberg, 1986). The RSES exhibits good internal consistency, test-retest reliability, as well as convergent and discriminant validity (Bahaeloo-Horeh & Assari, 2008).

2.2 Statistical Analysis

We performed data analysis using SPSS software. A paired t-test was used for comparing self-esteem levels of the participants before and after taking the swimming course. In addition, Pearson correlation coefficient (r) tests were conducted in order to investigate the relationship between self-esteem and swimming skill among the female students.

Before discussing the research questions, the summary of information of students such as the mean and standard deviations of age and the semester of both groups (experimental and control), is shown in Table 1.

In this study 141 participants were separated into 69 (49%) subjects in the experimental group and 72 subjects (51%) in the control group. The mean age $\pm$ standard deviation (SD) was 23.38 ± 1.81 years (range, 20–27 years) for the experimental group and that for the control group was 23.06 ± 2.03 years (range, 20–28 years). The participants were studying in various fields, including education, engineering, business, and human sciences. The mean age $\pm$ SD, for the experimental group was $2.72 \pm .82$ and that for the control group was 2.96 ± 1.06 (range, two until six).

Table 1. Age and semester mean and standard deviations of the groups

Groups	N (%)	Age	Semester
		Mean $\pm$ SD	Mean $\pm$ SD
Experimental	69 (49%)	23.38 $\pm$ 1.81	2.72 $\pm$.82
Control	72 (51%)	23.06 $\pm$ 2.03	2.96 $\pm$ 1.06
Total	141 (100%)	23.22 $\pm$ 1.92	2.84 $\pm$.94

3. Results

The findings mentioned above are very important to increase the self-esteem levels of students by engaging in physical exercise. The mean scores and standard deviations were also calculated for both the experimental and control groups to compare the differences in self-esteem levels between the two groups. The mean scores and standard deviations were also calculated for both the experimental and control groups to compare the differences in self-esteem levels between the two groups.

As shown in Table 2, the means were within the medium range: experimental group in post-test ($M=3.62$) reported higher overall strategy use than control group in post-test ($M=3.37$). Meanwhile, the means for experimental in post group ($M=3.62$), also, reported higher overall strategy use than pre-test in this group ($M=3.43$).

The results of the independent-samples t-test, which was conducted to compare the self-esteem scores of the experimental and control groups in the pre-test, were shown in Tables 2 and 3, respectively. There was no significant difference in scores for experimental group ($N=69$, Mean= 3.44, $SD=.24$) and the control group ($N=72$, Mean= 3.38, $SD=.29$; $t(139) = 1.25$, $p = .21$, two tailed) (Mean difference = .057, 95% CI: -.03 to .15). In addition, as shown in Table 3, the significance level for Levene's test was 0.288 (<0.05). Thus, the assumption of equal variances was not violated. Moreover, The Sig. (two-tailed) value here was 0.21 (>0.05). Therefore, the pre-test did not show statistically significant differences between the mean self-esteem scores of the experimental and control groups.

The variances for the two groups (experimental and control) were also different (Tables 2 and 4), owing to the fact that the significance level for Levene's test was $0.123 \geq 0.05$. This means that the assumption of equal variance has not been violated. In addition, an independent-sample t-test was conducted to compare the self-esteem scores for experimental and control groups in post-test. There was a significant difference between the scores of the experimental group ($N=69$, Mean= 3.62, $SD=.30$) and the control group ($N=72$, Mean= 3.37, $SD=.30$; $t(139) = 4.90$, $p = .000$, two tailed) (Mean difference = .23, 95% CI: .14 to .33). Table 5 shows the significant differences between the two groups of female students (experimental and control) in terms of self-esteem.

Table 2. Mean $\pm$ SD of self-esteem in the pre-test and post-test for each group

Group	N	Pre-test	Post-test
		Mean $\pm$ SD	Mean $\pm$ SD
Experimental	69	3.44 $\pm$.24	3.62 $\pm$.30
Control	72	3.38 $\pm$.29	3.37 $\pm$.30
Total	141	3.40 $\pm$.27	3.50 $\pm$.31

Table 3. Independent samples t-test of Self-esteem in the pre-test

Levene's Test for Equality of Variances			t-test for Equality of Means							
									95% Confidence Interval of the Difference	
F		Sig.	t	f	Sig. (2tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Total Self-esteem	Equal variances assumed	1.140	288	1.256	139	.21	.057	.045	-.032	.15
	Equal variances not assumed			1.261	136	.21	.057	.045	-.032	.15

Table 4. Independent samples t-test of self-esteem in the post-test

Levene's Test for Equality of Variances		t-test for Equality of Means								
									95% Confidence Interval of the Difference	
F		Sig.	t	f	Sig. (2tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Total Self-esteem	Equal variances assumed	.85	.36	4.90	139	.000	.25	.05	.15	.35
	Equal variances not assumed			4.90	138	.000	.25	.05	.15	.35

Table 5. The t-test model for self-esteem

	Pre-test	Post-test
Experimental & Control	NS ^a	S ^b
N= 141		

^a NS= no significant, ^b S= significant

3.1 Relationship between Self-Esteem and Swimming Skill

Swimming skill was graded based on the following four categories as required by FINA rules: 1) the subjects who cannot swim as a control group (72 subjects), 2) subjects who can swim 25 m, 3) subjects who can swim 50 m, and 4) subjects who can swim 100 m. In addition, out of the 69 of subjects in the experimental group, 35 swam 25 m, 23 swam 50 m, and 11 swam 100 m.

Pearson correlation coefficient (r) tests were conducted in order to investigate the relationships between self-esteem and swimming skill among the female students in post-test of experimental group. The mean total self-esteem $\pm$ standard deviation (SD) was 3.46 ± 0.29 . The mean of swimming skill $\pm$ SD was 1.40 ± 0.80 . Table 6 shows the descriptive statistics for self-esteem and swimming skill. Cohen suggests the following guidelines if $r = 0.10$ to 0.29 , there is a small correlation, $r = 0.30$ to 0.49 refers to medium correlation and if $r = 0.50$ to 1.0 , there is a large correlation (Cohen, 1988). Table 7 shows small correlation between self-esteem and swimming skill (r

= 0.177, sig 0.146), thereby suggesting a small positive relationship between self-esteem and swimming skill.

Table 6. Descriptive statistics

	Mean	SD
Total Self-esteem	3.46	.29
Swimming skill	1.40	.80

Table 7. Correlations^a

Experimental Group (post-test)	Swimming Skill	
	Total Self-esteem	pr
		.177
		Sig (2tailed)
		.146

a. Listwise N=69

The scatter plot is used to check aspects of the distribution of the two variables (swimming skills with total self-esteem). The output generated is shown in Figure 1. Observation and analysis confirmed the correlation between the level of self-esteem and swimming skill.

4. Discussion

The present study aims to show the positive effect of a swimming course on self-esteem among students. The self-based activity of challenging nature seemingly affects the psychological aspects of a swimmer (Tavakolizadeh et al., 2012). This effect has been observed in mountaineering as well (Bahaeloo-Horeh & Assari, 2008). Whereas running is composed of more complex motor patterns, swimming requires the individual to acclimate to the water environment. Given that the novice must learn various skills and strokes to swim continuously, a swimmer's skill level may affect her/his degree of mood change. Psychologists suggest that different psychological factors influence the mood benefits. This claim indicates that feelings of enhanced self-esteem resulting from valuing one's self can be a sufficient reason for a person to continue exercising (Berger & Owen, 1983). One of the most common views regarding the benefits of sports is enhancement of self-esteem (Douglas Coatsworth & Conroy, 2006; Keikha & Siadat, 2013).

However, our study found a positive relationship between enhancement of self-esteem and general mental health, suggesting the significance of the effect of swimming on the self-esteem of individuals with poor mental health. Therefore, swimming is recommended as a vital activity for individuals with poor mental health. The effectiveness of a sport program requires not only a result-oriented program but also the athletes' perception and evaluation of the effectiveness of interventions by coaches and sports psychologists. Perception of ability and success by the athletes themselves is important because this perception commits athletes to train, participate in mental health education and be continuously involved in the program despite the absence of a coach and a psychologist. The integrated principles of biomechanics, physiology, and nervous system in coordinating movement need the involvement of psychological factors (Majzub & Tajul Arifin Muhamad, 2010).

Several assessments have been analysed to reflect the short-term positive effects of exercise on adolescents (Ekeland et al., 2005). Consequently, follow-up investigations need to be conducted to identify the short-term or long term effects of swimming on self-esteem. In addition, such a plan could lead to the creation of university physical education programs by assessment of the psychological effects of different sports on university students. The positive influence of swimming on self-esteem can boost well-being and educational performance (Tavakolizadeh et al., 2012). Resources to support this sport should thus be allocated, especially at universities, for students who can participate in a swimming course to reap these benefits regardless of demographic factors and sporting history.

These findings and observations confirm a high correlation between the self-esteem of subjects in the experimental group and their swimming skill. The result also displays a significant impact of swimming on the self-esteem of female college students. Students, who showed a lower self-esteem, especially during the first swimming classes, achieved lower results in the swimming skill tests (as confirmed by the qualitative analysis). Nevertheless, despite gradual improvement in swimming skill, the average self-esteem of female students was increase (Tavakolizadeh et al., 2012).

5. Conclusion

The study reflects a significant positive effect of a swimming course on students' self-esteem, especially those with poor mental health. Therefore, prioritizing swimming in the students' activity schedule is recommended. The study on the relationship between swimming skills and self-esteem reveals a positive correlation. Finally, the observed learning progress in swimming skills among female students also increases self-esteem.

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References

- Auweele, Y. V., Association, E. S. P., & Education, E. N. O. S. S. I. H. (1999). *Psychology for physical educators*. Human Kinetics.
- Bahaeloo-Horeh, S., & Assari, S. (2008). Students Experience Self-Esteem Improvement during Mountaineering. *Wilderness & amp; Environmental Medicine*, 19, 181-185.
- Berger, B. G., & Owen, D. R. (1983). Mood alteration with swimming--swimmers really do" feel better". *Psychosomatic Medicine*, 45, 425-433.
- Binsinger, C., Laure, P., & Ambard, M. F. (2006). Regular extracurricular sports practice does not prevent moderate or severe variations in self-esteem or trait anxiety in early adolescents. *Journal of Sports Science and Medicine*, 5, 123-129.
- Brook, U., & Heim, M. (1991). A pilot study to investigate whether sport influences psychological parameters in the personality of asthmatic children. *Family Practice*, 8, 213-215.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Lawrence Erlbaum.
- Douglas Coatsworth, J., & Conroy, D. E. (2006). Enhancing the self-esteem of youth swimmers through coach training: Gender and age effects. *Psychology of Sport and Exercise*, 7, 173-192.
- Ekeland, E., Heian, F., Hagen, K., & Coren, E. (2005). Can exercise improve self esteem in children and young people? A systematic review of randomised controlled trials. *British Journal of Sports Medicine*, 39, 792.
- Harter, S. (2001). *The construction of the self: A developmental perspective*. The Guilford Press.
- Keikha, A., & Siadat, S. A. (2013). Comparison of factors related to happiness among Individual and team, Disciplines athletes women (case study).
- Laure, P., Binsinger, C., Ambard, M., Girault, S., & Friser, A. (2005). Can self-esteem and trait anxiety predict drugs use among early adolescents. *Psychotropes*, 1, 73-90.
- Lindwall, M., & Hassmen, P. (2004). The role of exercise and gender for physical self-perceptions and importance ratings in Swedish university students. *Scandinavian journal of medicine & science in sports*, 14, 373-380.
- Liukkonen, J., & Association, E. S. P. (2007). *Psychology for Physical Educators: Student in Focus*. Human Kinetics.
- Marcus, B., King, T., Clark, M., Pinto, B., & Bock, B. (1996). Theories and techniques for promoting physical activity behaviours. *Sports medicine (Auckland, NZ)*, 22, 321.
- Marsh, H. W., & Hattie, J. (1996). Theoretical perspectives on the structure of self-concept.
- Paradise, A. W., & Kernis, M. H. (2002). Self-esteem and psychological well-being: Implications of fragile self-esteem. *Journal of Social and Clinical Psychology*, 21, 345-361.
- Raglin, J. S. (1990). Exercise and mental health. Beneficial and detrimental effects. *Sports medicine (Auckland, NZ)*, 9, 323.
- Readdy, T., & Ebbeck, V. (2012). Obsessive-compulsive Disorder Symptoms and Correlates in Community Exercisers. *Psychology of Sport and Exercise*.
- Rohaty, M., & Muhamad, T. A. (2010). Goal orientation, attention styles and anxiety of junior golfers in Malaysia. *Procedia-Social and Behavioral Sciences*, 9, 583-588.
- Rosenberg, M. (1986). *Conceiving the self*. Krieger Malabar eFL FL.

- Sonstroem, R. J., & Morgan, W. P. (1989). Exercise and self-esteem: Rationale and model. *Medicine & Science in Sports & Exercise*.
- Spence, J. C., McGannon, K. R., & Poon, P. (2005). The Effect of Exercise on Global Self-Esteem: A Quantitative Review. *Journal of sport & exercise psychology*, 27, 311-334.
- Tavakolizadeh, J., Abedizadeh, Z., & Panahi, M. (2012). The Effect of Swimming on Self Concept's Girl High School Students. *Procedia-Social and Behavioral Sciences*, 69, 1226-1233.
- Wild, L. G., Flisher, A. J., Bhana, A., & Lombard, C. (2004). Associations among adolescent risk behaviours and self-esteem in six domains. *Journal of Child Psychology and Psychiatry*, 45, 1454-1467.

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