

The benefits of swimming training in dealing with stress in school-age children: A quasi-experimental study in Bali

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You Have to Know!

1. Swimming training has been shown to reduce stress scores in school-age children
2. Swimming training can be an alternative for parents or teachers in dealing with the stress of school-age children
3. Swimming training is a form of hydrotherapy that is beneficial for health

Abstract

Introduction: Swimming is a popular water sport for the community. This sport is considered very fun and suitable for anyone regardless of age. Swimming has various benefits, including improving psychosocial conditions in school-age children during the COVID-19 pandemic. This study aims to determine the effect of swimming training on reducing stress in school-age children

Methods: This quasi-experimental study was conducted using a one-group pretest-posttest design approach, which was conducted on 30 elementary school students registered at the Jalak Bali Swimming Club, Jembrana, Bali who have met the inclusion criteria. The training program was developed based on the principles of the Bompa training and the stress score was measured using a 14-item PSS-C questionnaire on pretest and post-test. then the data were analyzed using the paired t-test to determine the effect of swimming exercise

Results: The results of these tests can be concluded that swimming training has a significant effect on reducing stress in school-age children (sig. value < 0.05). Furthermore, there is a decrease in stress scores of 3,467 from the results of the pretest to the post-test

Conclusions: Swimming training can reduce stress for school-age children. Swimming sports activities can be an alternative for parents or teachers in dealing with stress to improve the mental health of school-age children.

Keyword: school-age children, stress, swimming training

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1. INTRODUCTION

Based on contemporary research, childhood is seen as a developmental period, free from external demands, responsibilities, and stress. However, children experience the stress of life events and daily hassles, which ultimately these experiences can increase the child's health problems. Children are often faced with various stressful situations in carrying out daily activities, including homework, standardized testing situations, and presentations.¹ Childhood stress has been associated with

immunological, endocrinological, and neurological. On the other hand, when experiencing psychological stress, normal children generally experience higher physical and mental illness rates.² Moreover, children's stress will increase due to learning during the COVID-19 pandemic.

The COVID-19 pandemic has become a significant health issue worldwide, which substantially impacts the lives of the world's population. The rapid spread of the virus has caused

countries worldwide to do everything they can to stop the spread of COVID-19. Indonesia has become one of the countries experiencing the impact of the pandemic.³ In stopping the spread of COVID-19 in the education system in Indonesia, the government has set regulations regarding school learning that must be done online. The circular letter of the ministry of education and culture number 15 of 2020 explains that learning arrangements during the pandemic are carried out by using the online method.⁴ The application of the home study policy makes some students feel anxious and depressed, which is caused by the many tasks given by the teacher in undergoing online learning.⁵ According to a survey conducted by the Indonesian Ministry of Women's Empowerment and Child Protection, which was conducted on more than 3,200 elementary to high school children in July 2020, 13% of respondents experienced symptoms leading to mild to severe depression during the "new normal" period.⁶ So, it takes our various efforts to deal with children's stress, one of which is swimming.

Swimming is a popular water sport for the community. This sport is considered very fun and suitable for anyone regardless of age, carried out by children to old age, even from infancy.⁷ This sport is defined as an effort to float or lift the body carried out by living things to move and survive in the water.⁸ Several factors will influence individual swimming ability, such as mastered technique, muscle strength, explosive power, coordination, rhythm, and speed.⁹ Swimming has various benefits, including maintaining physical fitness, personal safety efforts, increasing physical abilities, improving

physical development and growth, educational facilities, recreation, rehabilitation, and achievement. The various benefits of swimming can be achieved if done correctly and according to the direction of the coach, one of which helps improve psychosocial conditions.

Researchers are aware that there is limited research evidence relating to the impact of swimming training on stress in school-age children. Based on this, this study aims to determine the effect of swimming training on reducing stress in school-age children.

2. METHODS

This type of research is quasi-experimental research, with a one-group pretest-posttest design approach. This research was conducted on 30 elementary school students registered at the Jalak Bali Swimming Club, and the research was carried out at the Taman Tirta Krisna Swimming Pool, Jembrana. The research sample was selected using a probability sampling technique with a simple random sampling approach. The inclusion criteria included: 1) Swimmers in group IV aged 7-10 years; 2) Have an ideal Body Mass Index (BMI) (18.5-24.9); and 3) Have basic freestyle swimming skills. The exclusion criteria used in this study include: 1) Sample candidates with physical illnesses that can hinder the research process; 2) Samples who were injured during the research process.

Table 1. Swimming training program for school-age children

Weeks	Exercise	Stretching (minute)	Repetition	Set	Intensity	Recovery (minute)
<i>Pretest (stress)</i>						
1	I	10	6	5	70 %	10
	II	10	6	5	70 %	10
	III	10	6	5	70 %	10
2	I	10	6	6	75 %	10
	II	10	6	6	75 %	10
	III	10	6	6	75 %	10
3	I	10	6	7	80 %	10
	II	10	6	7	80 %	10
	III	10	6	7	80 %	10
4	I	10	6	6	75 %	10
	II	10	6	6	75 %	10
	III	10	6	6	75 %	10
<i>Post-test (stress)</i>						

2.1. Research Procedures

Researchers conducted a preliminary study at the “Jalak Bali” Swimming Club and the Taman Tirta Krisna Swimming Pool, Jembrana. The preliminary study aims to determine the population size, convey the purpose of the research, and survey the research location before the data collection process. At this stage, researchers design training programs and training facilities, including training implementation plans, attendance, stress level questionnaires. The researcher also prepared tabulation table sheets to record the results of the pretest and post-test.

Researchers select and collect prospective research subjects by the established sampling technique. Next, the researcher explained the research process, contracted exercise time, and asked for informed consent by asking for a signature from the subject directly witnessed by a parent. The training program is structured based on the training principles of Bompa and Haff (2009).¹⁰ The training program table can be seen in Table 1.

2.2. Research Instrument

This study uses The Perceived Stress Scale for Children (PSS-C) developed by White (2014)¹¹, and 14 questions about stress felt by children are

answered using 4 Likert scales, ranging from “never” to “a lot”. This questionnaire measures their stress during the past one week by adjusting language skills and visualizing answers that are easy for children to understand.

2.3. Data Analysis

The results of the data (pretest and post-test) carried out from the given swimming training will then be analyzed using a paired t-test with a 95% confidence level ($\alpha = 0.05$). The hypothesis tested in this study is swimming training can reduce stress levels of school-age children.

3. RESULTS

Based on the Table 2, the average age of the participants was 8.6 years (8.60 ± 1.133) with most of them being 8 and 10 years old (30%). Based on gender, most of them are male (56.3%). The stress score data that has been measured on the participants show a mean pretest score of 27.83 (27.83 ± 5.120) and a mean post-test score of 24.37 (24.37 ± 4.679). If analyzed by using the paired t-test to compare the pretest and post-test scores on the participants' stress on the provision of swimming training, the results are shown in Table 3.

Table 2. Descriptive statistics (n = 30)

Characteristic	Total (n)	Percentage (%)
Age (year)		
Mean (SD)	8.60 (1.133)	
7	6	20
8	9	30
9	6	20
10	9	30
Total	30	100
Gender		
Male	18	56.3
Female	12	37.5
Total	30	100
Stress		
Pretest		
Mean (SD)	27.83 (5.120)	
Post-test		
Mean (SD)	24.37 (4.679)	

Table 3. Result of Paired t-test analysis

Result	n	Mean	-SD	SE	t	df	Sig.	95% CI	
								Lower	Upper
Pair Stress pretest – post-test	30	3.467	1.106	0.202	17.170	29	0.000	3.054	3.880

Table 3 shows that the difference in average after being given swimming training is 3,467 (1,106 ± 1,106), so it can be concluded that there is a decrease in stress scores of 3,467 from the results of the pretest to the post-test. Next, the sig value is obtained. of 0.000, so H₀ is rejected (sig. value < 0.05). The results of these tests can be concluded that swimming training has a significant effect on reducing stress in school-age children.

4. DISCUSSION

Based on the results of the analysis of this study, it can be concluded that swimming training can reduce stress for school-age children, so swimming sports activities can be an alternative for parents or teachers in dealing with stress as a result of online learning. The results obtained in this study are supported by the findings of previous studies. Research conducted by Kurniawan (2019) proves that swimming, with the game method in the pool, effectively reduces the stress of high school students.¹² Swimming training is a form of hydrotherapy. Hydrotherapy is a treatment and healing method using water to achieve therapeutic effects. Hydrotherapy is a therapeutic method with a low-tech approach that relies on the body's responses to water. Some of the benefits of water therapy include: preventing flu/fever, improving fertility, curing fatigue, improving immune function, increasing body energy, and helping smooth blood circulation.¹³ In addition, physical activity that is carefully planned and takes into account the length of the process of swimming activity can influence the frontal lobe, the part of the brain that functions in brain concentration, as well as thinking about a plan.¹⁴

We need to understand the various methods we can give our children to deal with the stress they are experiencing. In a child, stressful situations (which are a source of stress) create feelings of insecurity, fear, and tension, which they are unable to deal with or resolve on their own. They may very well be ignorant of the emotions they are feeling at the time and not know the causal relationship to the situation they are in. It is also possible that the child only feels discomfort without knowing the real cause and condition.¹⁵ So, we must help to provide various activities or exercises that aim to overcome the pressure they feel. Health workers can provide health education related to positive activities to families or teachers, positive activities increase adaptive coping abilities to perceived problems.

Moreover, school-age children have not been able to make decisions on a problem independently (assisted by parents or teachers at school).

However, there are some things to keep in mind before, during, and after swimming. For example, so that the body is not 'surprised', it is recommended to warm up and cool down. Start with light movements, such as swinging your arms and legs or taking a 10-15 minute walk around the pool. To get the benefits of swimming, you should swim properly. If just playing with water is fun, this only involves very low physical activity and has a less than the optimal effect on the body. It is recommended with the help of an experienced swimming instructor.

5. CONCLUSION

Based on the results of the analysis of this study, it can be concluded that swimming training can reduce stress for school-age children, so swimming sports activities can be an alternative for parents or teachers, in dealing with stress as a result of online learning. For young children, researchers suggest independently doing exercises to improve psychosocial conditions affected by online learning during the COVID-19 pandemic. Swimming training is a form of exercise that can be done independently. However, the practices carried out to prepare early age swimmers are carried out in a programmed manner supervised by swimming coaches or parents to achieve optimal physical and mental health.

6. DECLARATION OF INTEREST

All the authors have no conflict of interest related to the study.

7. FUNDING

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