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Basic motor movements of elementary school students following their experience with online learning during the COVID-19 pandemic period

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ABSTRACT

The aim of this quantitative-descriptive study was to assess the basic motor movements of elementary school students following their experience with online learning during the COVID-19 pandemic period. The population and sample in this study were fourth grade students of State Elementary Schools in Bangkalan District, Madura Island, East Java, Indonesia, with a total of 98 students sampled. The instrument for measuring motor skills was the Motor Ability Test for Elementary School. Followed by data collection, statistical analysis of data was processed by the SPSS program. The result showed that in the total basic motor movement in the very high category with a total of 0%, the high category was 7%, the moderate category was 87%, the low category was 4%, and very low category by 2%. The basic motor movements of elementary school students in Bangkalan, following the online learning during the COVID-19 pandemic, were categorized as moderate. Further studies are therefore needed to improve the basic motor movements of primary school children.

KEYWORDS

Basic Motor Movement; Elementary School Students; Post Online Learning; COVID-19 Pandemic

1. INTRODUCTION

COVID-19 is a disease caused by a new type of corona virus that was first discovered in 2019 in Wuhan, China. The spread of this corona virus was very fast and spread throughout the world in a short time. The COVID-19 pandemic has had a significant impact on the health, economy and social life of people around the world. The COVID-19 pandemic has changed the daily lives of many

people, including elementary school children. Lockdown policies and social restrictions around the world are forcing primary school children to stay at home and reduce social contact with their peers, which can have a negative impact on their mental and physical health. A number of studies have shown that children affected by the COVID-19 pandemic experience a significant reduction in physical activity. Previous research show that the COVID-19 pandemic has had a significant impact on children's physical activity. This research found that the restrictions placed on children's physical activities during the COVID-19 pandemic have led to a drastic reduction in the time spent on their daily physical activities. This limits their movement and can have a negative impact on children's long-term health (Brown, Richards & Turley, 2021). In addition, other research showed that the COVID-19 pandemic also affected children's physical activity, sitting behavior, and sleep quality. This research found that children affected by the COVID-19 pandemic spent more time sitting and less time moving (Jiao et al., 2020). This can have a negative impact on their physical and mental health.

The studies above show that the COVID-19 pandemic has had a significant impact on children's physical movement. Lockdown policies and social restrictions implemented around the world can limit children's opportunities to move around and interact with their peers, which can negatively impact their long-term health. Therefore, it is important to know the basic movement state of elementary school children after the COVID-19 pandemic as an effort to find out the movement state of elementary school children and can then become a follow-up plan in the future.

Basic movement skills are important to learn physical education and sports because movement abilities are part of the psychomotor aspect, and their development can take the form of mastery of movement skills so that if they have good movement skills, children will have the foundation to master specific movement skills tasks. One of the objectives of physical education, sports, and health subjects is to improve students' basic movement abilities and skills. Basic movement skills are skills that involve the brain, muscle strength involving the arms and legs that are used to achieve an exercise or movement goal, such as throwing a ball, jumping, or jumping through water movements, or maintaining balance. To achieve this goal, students with the help of a teacher must be able to absorb the knowledge about sports provided by the teacher through learning about motion. In addition, children must be able to get used to exercising outside of exercise class hours. By getting used to exercising, students naturally learn to move (Ningsih, Sarwita & Munzir, 2020). Due to the COVID-19 outbreak, schools are struggling to provide students with moderate-to-vigorous physical activity (MVPA), which should typically account for at least 50% of their child's

physical education (PE) class time (Lourenço, Rodrigues, Flores & Soares, 2022). This has an impact all over the world, even in Indonesia. Indonesia is one of the countries affected by the COVID-19 pandemic. As a result of this situation, educational and learning activities are carried out at home with the aim of reducing infection (Siahaan, 2020). Learning at home or called online learning is a new thing, especially for students in Indonesia, especially in learning physical education, sports, and health. This is certainly a problem in the world of education in Indonesia due to the COVID-19 pandemic.

Learning physical education, sports, and health is one place to apply motor skills learning in educational units (Mustafa, Winarno & Supriyadi, 2019). In addition, physical education, sports, and health are the only subjects in schools where children have the opportunity to learn motor skills and acquire knowledge to participate in various physical activities (Le & Corbin, 2006). In the period of growth and development, namely at the elementary school level, motor skills tend to be explored and improved through physical education, sports, and health learning carried out in schools. The role of physical education, sports, and health teachers at the elementary school level is an important agent in forming good motor skills in their students. This is because motor skills are one of the factors that can support human life in the future, so motor skills are an important part for students at the elementary school level (Mustafa & Sugiharto, 2020).

Previous research shows that fifth grade students in Koto Tangah have moderate to low motor skills of 68.57% (Yulifri, Nurini, Asnaldi, & Umar, 2019). A previous study on a sample of basketball female students showed that there was a statistically significant difference between the experimental and control groups in posttest basic motor movement on flexibility. There were statistically non-significant differences in other skills, moving balance and agility (Mashkoor & Hameed, 2022). In addition, research on gross motor skills in elementary school students in Padang Pariaman which has a sufficient category is 63.64% (Yeni & Surahman, 2019). Previous studies have shown that basic motor movements on the strength aspect have a significant influence on locomotion factors (Herrmann, Heim & Seelig, 2019). Nearly 90% of children with low physical fitness did not meet guidelines for at least 60 minutes of moderate-to-vigorous physical activity per day (Meester et al., 2018). The results showed that: (1) The motor skills of upper class male students at Gadingan Wates State Elementary School were in the "very poor" category of 6.98% (3 students), "less" of 30.23% (13 participants students), "enough" is 25.58% (11 students), "good" is 32.56% (14 students), and "very good" is 4.65% (2 students); (2) The motor skills of upper-class female students at the Gadingan Wates State Elementary School are in the "very poor" category of 4.44% (2 students),

"less" of 20.00% (9 students), "enough" is 51.11% (23 students), "good" is 20.00% (9 students), and "very good" is 4.44% (2 students) (Rinaldi, 2019).

The COVID-19 pandemic has affected activities at school. In sports learning at school, it is difficult to provide physical activity. Usually elementary school children in sports learning spend 50% of their time in class. This cannot be done due to the COVID-19 pandemic which has restricted children from going to school, because learning is done online (Lourenço, Rodrigues, Flores & Soares, 2022). This of course will indirectly affect the basic motor movement of children. But the basic motor movements in elementary school students after the online learning of the COVID-19 pandemic are still unknown.

Research on basic motor movement post COVID-19 pandemic in elementary school children in Indonesia is still unknown. The aim of this quantitative-descriptive study is to assess the basic motor movements of elementary school students following their experience with online learning during the COVID-19 pandemic period.

2. METHODS

2.1. Study Design and Participants

This research was quantitative descriptive. The population and sample in this study were fourth grade students of State Elementary Schools in Bangkalan District, Madura Island, East java, Indonesia, covering 4 public elementary schools, namely SDN Pejagan 3, SDN Kraton 2, SDN Kemayoran 3, and SDN Demangan 2 with a total of 98 students. The sampling technique employed in this study was total sampling, encompassing the entire sample of 98 students.

2.2 Instrument

The instrument utilized for assessing motor skills is the Motor Ability Test for Elementary School, comprising various components: Shuttle-run test covering a distance of 4 x 10 meters (assessing agility), a throw and catch test involving a distance of 1 meter from a wall (evaluating coordination), a Stork Stand Positional Balance test (measuring balance), and a 30-meter fast running test (assessing speed) (Nurhasan, 2007).

2.3. Statistical Analysis

Followed by data collection, statistical analysis of data was processed by the SPSS program. The type of data used in this study is an interval. Based on the data obtained from the results of data collection, then sorting is done from the data obtained to determine the similarities and differences in size. After that, the data is entered into the SPSS program for the analysis process. This rough result needs to be changed to have the same size. This replacement unit of measure is the T-Score. Furthermore, the T-Scores of each type of ability test are summed and divided by the number of types of test items, so that the average T-Score is obtained. The results of the average T-Score will then be converted. Then the T-Score values of the four items are added up, so that the total T-Score is obtained. The T score formula is as follows:

$$T = 10\,(\frac{M-X}{SD}) + 50$$

The results of the total T-Score become the basis for determining the classification of students' motor abilities. Categorization using the mean and standard deviation. Azwar (2016) states that to determine the score criteria using the Norm Reference Assessment (PAN) in table 1 as follows:

Table 1. Norm Reference Assessment

Number	Interval	Category
1.	X = M + 1,5 SD	Very good
2.	M + 0,5 SD = X < M + 1,5 SD	Good
3.	M – 0,5 SD = X < M + 0,5 SD	Moderate
4.	M – 1,5 SD = X < M – 0,5 SD	Poor
5.	X < M – 1,5 SD	Very poor

Note: M (mean), X (score), SD (standard deviation)

The subsequent step involved analyzing the gathered data to derive conclusions from the conducted research. The data analysis employed quantitative descriptive techniques, primarily utilizing percentages to interpret and present the findings. Arikunto (2006) states that the formula used is as follows:

$$P = \frac{F}{N} \text{ x } 100\%$$

3. RESULTS AND DISCUSSION

In the first part, we present the characteristics of the sample (Table 2).

Table 2. Sample characteristics

No	School origin	Boys	Girls
1	SDN Kraton 2 Bangkalan	13	18
2	SDN Pejagan 3 Bangkalan	10	11
3	SDN Demangan 2 Bangkalan	10	15
4	SDN Kemayoran 3 Bangkalan	10	11
	Total sample	43	55

Table 2 shows that the total sample is 98, divided into 43 boys and 55 girls. Of the 4 schools, 13 boys and 18 girls are from SDN Kraton 2 Bangkalan, 10 boys and 11 girls from SDN Pejagan 3 Bangkalan, 10 boys and 15 girls from SDN Demangan 2 Bangkalan, 10 boys and 11 girls from SDN Kemayoran 3 Bangkalan.

In the second part, the basic motor movements in the areas of coordination, balance, agility and speed are presented (Table 3).

Table 3. Basic motor movement (coordination)

Interval	Category	Frequency	Percentage
X > 65	Very high	0	0%
55 < X <65	High	29	30%
45 < X < 55	Moderate	46	47%
35 < X < 45	Low	11	11%
X < 35	Very low	12	12%
Total		98	100%

Table 3 shows that the basic motor movement (coordination) is given a total of 0 (0%) in the very high category, 29 (30%) in the high category, 46 (47%) in the medium category, 11 (11%) in the low category and 12 (12%) in the very low category. Table 4 presents the basic motor movement results regarding balance.

Table 4. Basic motor movement (balance)

Interval	Category	Frequency	Percentage
X > 65	Very high	5	5%
55 < X <65	High	18	18%
45 < X < 55	Moderate	36	37%
35 < X < 45	Low	39	40%
X < 35	Very low	0	0%

Total	98	98

Table 4 shows that for basic motor movement (balance), a total of 5 (5%) were achieved in the very high category, 18 (18%) in the high category, 36 (37%) in the medium category, 39 (40%) in the low category and 0 (0%) in the very low category.

Table 5 shows that in the basic motor movement (agility), the total in the very high category is 2 (2%), in the high category 17 (18%), in the medium category 63 (64%), in the low category 14 (14%) and in the very low category 2 (2%).

Table 5. Basic motor movement (agility)

Interval	Category	Frequency	Percentage
X > 65	Very high	2	2%
55 < X <65	High	17	18%
45 < X < 55	Moderate	63	64%
35 < X < 45	Low	14	14%
X < 35	Very low	2	2%
Total		98	98

Table 6 shows that for the basic motor movement (speed), a total of 4 (4%) are in the very high category, 21 (22%) in the high category, 52 (53%) in the medium category, 19 (19%) in the low category and 2 (2%) in the very low category.

Table 6. Basic motor movement (speed)

Interval	Category	Frequency	Percentage
X > 65	Very high	4	4%
55 < X <65	High	21	22%
45 < X < 55	Moderate	52	53%
35 < X < 45	Low	19	19%
X < 35	Very low	2	2%
Total		98	100%

Table 7 shows that in the entire basic motor movement, the total in the very high category is 0 (0%), in the high category 7 (7%), in the medium category 85 (87%), in the low category 4 (4%) and in the very low category 2 (2%).

Table 7. Basic motor movement

Interval	Category	Frequency	Percentage
X > 65	Very high	0	0%
55 < X <65	High	7	7%

45 < X < 55	Moderate	85	87%
35 < X < 45	Low	4	4%
X < 35	Very low	2	2%
Total		98	98

The results of this study indicate that basic motor movements in elementary school students after COVID-19 brave learning are in the moderate category. The results obtained in this study are almost the same as previous studies that fifth grade students in Koto Tangah have moderate to low motor skills of 68.57% (Yulifri et al., 2019). The research was conducted before the COVID-19 pandemic. This research was conducted after the COVID-19 pandemic. Which shows the same results, that the basic motor movement is in the moderate category. This shows that the COVID-19 pandemic has not affected the basic motor movements of elementary school children. Therefore, the basic motor movement which is in the medium category needs to be improved. This is because basic motor movement is an important part for elementary school children, one way to do this is to increase the physical activity.

Physical activity has a positive impact, besides that it also contributes to physical and mental health in every period of human life, especially on the development of children at an early age. The basic movement skills acquired through education during this period will form the infrastructure that children need for motor development for adulthood. In fact, improper basic movement skills in childhood can lead to a sedentary lifestyle that can increase the risk of certain health problems, for example obesity in elementary school students (Cerit et al., 2020).

4. CONCLUSIONS

From the results of our study, we conclude that the basic motor movement of elementary school students in Bangkalan after the online learning of the COVID-19 pandemic was in the moderate category. Before the COVID-19 pandemic and after the COVID-19 pandemic the basic motor movement of elementary school children was in the moderate category. Further studies are therefore needed to improve the basic motor movements of primary school children.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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