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<https://ejournal.upi.edu/index.php/penjas/article/view/38547>DOI: <https://doi.org/10.17509/jpjo.v6i2.38547>**Physical Activity Level of Students with Disabilities during COVID-19 Pandemic****Erick Burhaein^{1,2*}, Beltasar Tarigan², Dian Budiana², Yudy Hendrayana², Diajeng Tyas Pinru Phytanza³**¹Department of Sports Education, Universitas Ma'arif Nahdlatul Ulama Kebumen, Indonesia²Department of Sports Education, Postgraduate Program, Universitas Pendidikan Indonesia, Indonesia³Department of Special Education, Faculty of Education, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia**Article Info***Article History :**Received August 2021**Revised August 2021**Accepted August 2021**Available online September 2021**Keywords :**Adapted physical education, COVID-19 pandemic, physical activity***Abstract**

Physical activity is one of the vital components of students with disabilities during the COVID-19 pandemic, which has become endemic in various countries, including Indonesia. The purpose of the study was to determine the level of physical activity of students with disabilities during the COVID-19 pandemic. Participants of this study were 17 students with disabilities (intellectual disability, hearing impairment, speech impairment) aged 8-14 years. This research used a quantitative descriptive research method. The tool used was the Children's Physical Activity Questionnaire (PAQ-C) distributed through Google Forms. Data analysis included quantitative descriptive statistics analysis and the analytical need testing using IBM SPSS 24 applications. The results showed that the physical activity of students with disabilities during the COVID-19 pandemic was primarily distributed in the low category, namely nine students (50%). Therefore, this study implied that students should maintain and increase physical activity by doing light physical activity at least 30 minutes a day and maintaining immunity by eating nutritious foods such as vitamins, fruits, vegetables, and healthy foods to prevent the spread of the COVID-19 virus. For further research, it will be interesting to study adaptive learning more deeply during pandemics in the broader scope in Indonesia.

INTRODUCTION

The virus, better known as coronavirus or COVID-19, is a crisis faced by people worldwide today. The spread of COVID-19 in Indonesia and the world impacts every aspect of life (Chen et al., 2020; Purwanto, Lumintuarso, & Burhaein, 2021). The country's government takes swift action by establishing policies to break the chain of the spread of the coronavirus (Burhaein, 2020b; Putra, Purwanto, & Burhaein, 2021). Policies set by the government include curfews, telecommuting, social distancing, social restrictions, and others. Related sectors, especially the education sector, should carry out the policy well to maximize government efforts. The outbreak of COVID-19 has also affected the field of education (Yunus & Rezki, 2020). Indonesia is one of many countries that have decided to close schools and universities until an undetermined deadline. Hence, the most widely implemented effort is distance learning, where students are encouraged to study at home during pandemics. Teaching and learning activities have been carried out remotely through an online system since March 2020. The learning system is administered remotely through various learning facilities such as Google Meet, Zoom meeting, Google classroom, YouTube, Whatsapp, TV, and other social media (Burhaein, 2021; Nurulfa et al., 2021). Students with disabilities also experience the same condition. They can use supporting apps such as WhatsApp, Zoom, Google Classroom, and other remote platforms to facilitate online learning.

According to the content and subjects taught in schools during the pandemic, it can be divided into two categories. The first category is a group of subjects focusing on theory and a little practice, while the second category is a group of subjects focusing on practice and lacking theory. These two categories are very different in online learning (Boukrim, Obtel, Kasouati, Achbani, & Razine, 2021; Burhaein, 2020a). Adaptive Physical Education learning involves the theory and practice categories. Adaptive Physical Education is physical activity and educational activity for students with disabilities, where game activities or physical activities (such as sports) can be used in educational activities and the physical activity experience can be used to achieve education (Burhaein, Phytanza, & Demirci, 2020; Burhaein, Tarigan, & Phytanza, 2020). In pandemic situations, students must keep their distance, wear

masks, and isolate themselves at home, which will affect the student dynamic life behavior, such as playing football, basketball, futsal, badminton, running, swimming, and gymnastics that are usually conducted at school; now the activities should be conducted at home to prevent the spread of COVID-19 (ACSM, 2020; WHO, 2020a). Activities that can be done at home to maintain the student health are walking in the yard, going up and downstairs, strength, flexibility, coordination, and speed training, cycling, aerobics, and others (Castañeda-Babarro, Coca, Arbillaga-Etxarri, & Gutiérrez-Santamaría, 2020; WHO, 2020c).

The restrictions help lower infection rates by limiting participation in normal daily activities, physical activity, travel, and access to various forms of exercise (e.g., gyms). On the other hand, Physical Education at home is not necessarily fully carried out by students because of the limited available facilities, infrastructure, and supervision (Castañeda-Babarro et al., 2020). In addition, teachers do not always carry out Physical Education effectively. This has the potential to encourage the emergence of lazy behaviors and eating disorders that can be bad for health, including an increased risk of chronic diseases such as high blood pressure, diabetes, obesity, and overweight, as well as the presence of other health complaints. According to a survey conducted in Morocco (Boukrim et al., 2021), more than a quarter of students are overweight or obese during the COVID-19 restriction period.

The COVID-19 pandemic has caused controversy in the health sector, especially about social isolation measures (Alomari, Khabour, & Alzoubi, 2020). It is widely regarded as one of the most effective strategies to reduce the spread of the virus. The physical educators who participated in the discussions have identified critical weaknesses related to access to basic health knowledge, including those related to epidemiology and health measures (Lynch, 2016). The emergence and global outbreak of the deadly virus pose a threat to the health and economy of the global community. The COVID-19 pandemic is proved to be an unprecedented disaster, especially from the health, social, and economic point of view.

According to a study conducted in a Country, more than a quarter of students are overweight or obese due to a lack of physical activity (Boukrim et al. 1 2021). During the Covid-19 isolation period, most stu-

dents were malnourished, only one-third of them had significant physical activity, and most were at risk of stress. About the effect of physical activity, Narici & De Boer (2011) research found that the absence of physical activity firstly affected the musculoskeletal system. After one month, a dangerous condition would occur, including a loss of muscle mass (12%) and bone density (estimated to be about 1%). In addition, restrictions due to the COVID-19 outbreak reduce physical activity, affecting poor eating habits, resulting in a very high risk of degenerative diseases, such as obesity, diabetes, cardiovascular pathology, cardiovascular disease, and others. According to the gap, there is an urgency to research physical activity, especially in children with disabilities. Therefore, this study aimed to determine the level of physical activity of students with disabilities during the COVID-19 pandemic.

METHODS

The design of this study used quantitative descriptive research methods (Fraenkel et al., 2012). The technique used was a survey on the physical activity of students with disabilities.

Participants

Participants of the study were randomly selected. This technique allows researchers to obtain data from varied participants (Fraenkel, Wallen, & Hyun, 2012). The population of this study was disabled students in Yogyakarta city. From the population, 17 students with some disabilities were chosen randomly as participants. Complete information about the characteristics of participants is presented in Table 1.

Table 1. Demographic Data of Participants

Demographic Data	Mean ± SD
Age	16.25± 3.68
Weight	55.52 ± 9.68
Height	152.88 ± 12.16
Type of Disability	Intellectual disability = 12 students Hearing & speech impairment = 5 students

Instrument and Procedure

The instrument used was a child physical activity questionnaire (PAQ-C) collected through Google Forms. PAQ-C instruments have a validity of 0.55 and reliability of 0.86 (Kowalski, Crocker, & Donen, 2004).

The purpose of using this questionnaire was to measure the level of variables considered as the most important and the variables to be used as materials to improve important parts in the future. PAQ-C is a 7-day physical activity instrument. The PAQ-C instrument grid presented in table 2.

Table 2. PAQ-C Instrument

No	Dimension	Number of Items
1	Type of Physical Activity	3
2	Frequency of Physical Activity	2
3	Duration of Physical Activity	2
4	The Intensity of Physical Activity	2
Total		9

Procedure

At this stage, the questionnaires about physical activity were provided through a Google Form. To maintain the quality of valid and reliable research results, the data collection procedure followed the following steps:

- 1) Google forms were not filled out by students but coordinated by APE teachers in schools.
- 2) APE teachers were assisted by the parents of students who would observe their child's physical activity for seven days.
- 3) The results of observations for seven days then became the answer to the question about physical activity on the Google Form.
- 4) APE teachers filled out the Google Forms assisted by parents who observed the student's physical activity.

Data Analysis

Data analysis in this study included a test of analytical requirements, namely normality test, using the help of IBM SPSS software v.24, and descriptive analysis test by examining the mean, standard deviation, and the level of physical activity category (5 categories). In addition, physical activity data were obtained by filling out the PAQ-C questionnaire through Google Forms, designed to determine the level of physical activity of students with disabilities. The measurement results were divided into five categories, namely: (1) very high, (2) high, (3) medium, (4) low, (5) very low. Spe-

cific data on the results of the PAQ-C questionnaire are shown in Table 3.

Table 3. PAQ-C Assessment Norms

No	Items	Description
1	0.0 – 1.0	Very Low
2	1.1 – 2.0	Low
3	2.1 – 3.0	Medium
4	3.1 – 4.0	High
5	4.1 – 5.0	Very High

RESULT

The test of analytical requirements was the initial stage in analyzing the physical activity data of students with disabilities during the pandemic. The test of the analytical requirements used in this study was the data normality test. When the obtained data were normal, the analysis could use parametric analysis techniques.

Table 4. Physical Activity Measurement Results during the Covid-19 Pandemic

Category	Frequency	
	f	%
Very Low	1	6
Low	9	50
Medium	8	44
High	0	0
Very High	0	0
Total	17	100

The results of the study data were then analyzed descriptively. The data were processed at the descriptive analysis stage by examining the mean, median, mode, standard deviation, minimum, and maximum scores. Descriptive statistical results of physical activity data of students with disabilities during the COVID-19 pandemic are presented in Table 4. After the descriptive data analysis stage, the data were classified based on the physical activity category of each student with disabilities. Data categorization was divided into five categories reviewed from the frequency and percentage of physical activity data of students with disabilities during the COVID-19 pandemic. The results of the data are shown in Table 4.

Based on Table 4, the results of physical activity measurements on students with disabilities, involving 17 students (100%), were categorized into five categories. The data categorization results found 1 student (6%) in the very low category, 9 students (50%) in the low category, 8 students (44%) in the moderate category, 0 students (0%) in the high category, and 0 students (0%) in the very high category. The results indicate that most data (50% of students) had a low physical activity.

DISCUSSION

The results showed that although Adaptive Physical Education (APE) learning was conducted online, students did enough physical activity, showing that 44% of the students were in the moderate category. Physical activity with the moderate category is sufficient to help learners maintain their health during the Covid-19 pandemic. Previous research findings show that physical activity has a significant impact on the body; the better the physical activity category, the more it affects the health of the body and energy composition (Kurniawan, Jajat, & Sutisna, 2019). Physical activity also minimizes diseases, including cardiovascular disease, mental health, bowel cancer, type 2 diabetes, and other diseases (Burhaein, 2017a; Piercy et al., 2018; Vuijk, Hartman, Scherder, & Visscher, 2010). Physical activity, such as exercise, is highly recommended because the benefits can be obtained by every student with disabilities routinely doing physical activity. In addition, approaches through physical activity are an excellent strategy for increasing cardiorespiratory capacity, the inflammatory system, and immune response. Due to the quarantine period, the practice of various physical activities at home can also be utilized to fight Covid-19 and must be incorporated into the APE learning routine for students with disabilities (Silva-Filho, Xavier, Cezarino, Sales, & Albuquerque, 2020).

The results of subsequent studies found that 50% of the physical activity of disabled students belonged to the low category, while 6% of them were in the very low category. Students in low-to-lower categories tend to get used to low physical activity during pandemics. The statement is supported by previous research stating that the sedentary habit is quite dangerous; thus, physical activity needs to be introduced early (Blair, Lamonte, & Nichaman, 2018; Hasan, Bahri, Ramanian, Karim, & Juniarsyah, 2019). Introducing physical activity at an

early age will become a habit carried into adulthood even throughout life. Therefore, it is crucial to familiarize and pay attention to the physical activity of students with disabilities as it would affect their growth, development, and dynamic living behavior in the future (Burhaein, 2017b; Phytanza, Burhaein, & Pavlovic, 2021; WHO, 2018). Covid-19 is a terrible health crisis, which demands urgent prevention. Although staying at home is the most critical strategy to cut out all hypothesized transmission routes, it should be conducted without neglecting the importance of maintaining regular physical activity and healthy eating habits (Hammami, Jdidi, & Frih, 2020).

Maintaining and maintaining the physical activity intensity at a moderate level is essential to maintain immune system function. Disabled student immunity is essential to be maintained and optimized during the COVID-19 pandemic (Phytanza & Burhaein, 2019; Pramantik & Burhaein, 2019). The role of APE teachers is vital in maintaining or even increasing students' physical activity during pandemics by using innovative learning media that are accessible to students at home. One learning medium is the virtual APE learning media to replace sports routines that learners cannot carry out. The virtual APE learning media is supported by previous research stating that during the Covid-19 pandemic, virtual sport is much loved and, in these uncertain times, the education model must be adjusted (Schroeder, Hall, & Kruse, 2020). The use of a virtual meeting platform to display images is possible. It allows an instructor to demonstrate and allows them to observe students and provide live feedback in real-time. Going forward, virtual teaching methods will likely continue to be the best learning strategies, as it provides increased access to individualized instruction (old strategies) of becoming more flexible in distance learning.

Online learning can also be conducted and provide motivation and appeal to students with disabilities to maintain physical condition by doing a regular physical activity which is helpful to fill their activities at home during the Covid-19 pandemic. The statement is supported by research concerning the increasing spread of Covid-19, where infection control and security precautions are essential to follow (Chen et al., 2020). Staying at home is a fundamental security measure to limit the spread of infection. However, staying at home for long periods can increase inactivity behaviors and contribute

to anxiety and depression, leading to sedentary lifestyles, which would result in a variety of chronic health conditions (Castañeda-Babarro et al., 2020). Therefore, maintaining regular physical activity in a safe home environment is vital for healthy living during the coronavirus crisis.

The number of activities missed by disabled students during the COVID-19 pandemic initiated children's unhealthy lifestyles and obesity due to the lack of activity. In addition, the student's nutritional intake is insufficient for carrying out physical activity. Therefore, it is necessary to enhance school sports activities and specialized training for students to acquire complex skills (Alomari et al., 2020; WHO, 2020b). An adequate activity or exercise can increase the heart work, blood circulation, and lungs so that the immune system (especially the heart) develops in the right direction. In addition to physical activity, parental support is also needed to help athletic development and improve student fitness (Verschuren, Wiart, Hermans, & Ketelaar, 2012). Therefore, to improve physical fitness, the exercise principle needs to be improved, including physical fitness, physical function capacity, and spiritual qualities. The more physical activity that students with disabilities do every day, the better their fitness will be.

CONCLUSION

The physical activity level of students with disabilities during the pandemic was mainly in a low category. This data shows that disabled students were less actively engaged during the COVID-19 pandemic, resulting in decreased physical activity in disabled students at risk of physical health and fitness problems. This study implies that to prevent the spread of the COVID-19 virus; the students should maintain and increase their physical activity by doing light physical activity at least 30 minutes a day and maintaining their immunity by eating nutritious foods such as vitamins and fruits, vegetables, and healthy foods. The limitations of this study include the small number of participants and study population. For further research, it will be interesting to study adaptive learning more deeply during pandemics with a broader scope in Indonesia.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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