The Impact of Sports and Health Physical Education Learning on Body Mass Index and Physical Fitness Before and During the Covid-19 Pandemic at SMP Negeri 1 Losari Cirebon

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Abstract

This exercise aims to discover the Impact of Physical Education, Learning Sports, and Health on Body Mass Index and Physical Fitness Before and During the Covid-19 Pandemic at SMP Negeri 1 Losari Cirebon. Comparative research design with a research sample of 120 students. The sample in the study was taken by total sampling. The test instrument for measuring body mass index is measuring body weight with a kilogram scale and height with a meter in cm. Meanwhile, physical fitness is measured by the bleep test. The results of the study showed (1) There was an impact of learning sports and health physical education on body mass index before the covid 19 pandemic at SMP Negeri 1 Losari Cirebon (2) There was an impact of learning physical education sports and health on physical fitness before the covid 19 pandemic at SMP Negeri 1 Losari Cirebon.

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INTRODUCTION

The pandemic of the coronavirus disease 2019 (Covid-19) has attacked all aspects of life. One of the fields affected tremendously is the field of Education (Aji, 2020: 32). What emerges from this pandemic, especially in education, is the application of learning from-home rules (Purwanto et al., 2020, p. 23). This is based on the Circular Letter of the Minister of Education and Culture of the Republic of Indonesia No. 3 of 2020 concerning preventing Covid-19 in Education Units.

In the circular letter, all levels of education have undergone a very extraordinary change, namely from conventional learning patterns to online-based or commonly known as online (Herliandry et al., 2020). Online learning
uses the Internet network in the learning process (Isman, 2017). Online learning allows students to connect with teachers through the Google Classroom app, phone or chat, zoom, or via WhatsApp. It is an update to make learning fun. Many things hinder online learning, including slow internet, especially for students who live in remote areas, high internet costs, limited use of computers and smartphones, learning at home a lot, and teachers and students needing to keep up with the development of science and technology. It happens, and students play many games.

Teacher challenges in online learning will be straightforward to answer by teachers accustomed to using technology during the learning process. However, this challenge is quite a big obstacle among sports teachers, who rarely use technology during the learning process (Indrayana & Sadikin, 2020). They usually focus on practice and field activities during learning. Transforming learning in the field, where the entire process is doing movements and activities, into online activities is certainly not easy (Sari & Sutapa, 2020).

The impact of PJOK learning on the body mass index and physical fitness of students before and during the pandemic encouraged researchers to try to conduct pre-observation at SMPN 1 Losari located in Losari District to determine the quality of the body mass index and the level of physical fitness of students during PJOK online learning during the COVID-19 pandemic. Based on the observations of researchers, there are several problem findings, including the still not optimal intensity of students in exercising, not optimal PJOK learning, which is in improving body mass index and physical fitness during the Covid-19 pandemic; some students experience fatigue in the eyes of PJOK tasks through online. The lack of movement of students in PE learning is due to online learning because it uses technology instead of direct physical activity, there is no student awareness of the importance of body mass index quality and physical fitness during this covid pandemic, some students play more gadgets Compared to physical activity that results in weight gain or obesity, lack of physical activity of students outside of school. In addition, based on data obtained by researchers in schools shows that students' weight increases in online learning through PJOK. In addition, on the problem based on the above observations, researchers also conducted TKJI tests and body mass index measurements to determine the impact of online learning on body mass index and physical fitness.

The data results show that the sample of 20 before online learning PJOK is as follows with details of 15 people (75%) with average body weight and five people (25%) with overweight body. However, after the pandemic, online learning PJOK is as follows: details of 10 people (50%) with average body weight, six people (30%) with body weight are overweight, and four people (20%) with body weight are obese. The data shows that students' weight has increased in online learning, physical education, sports, and health.

The lack of physical activity of students triggered the weight gain. This is in line with research by Hita et al. (2020). There is a
significant relationship between nutritional status and physical activity levels during the COVID-19 quarantine period, so an appeal is needed from the government so that people continue to maintain physical activity amid limited space for movement. The research results by (Budi et al., 2020) need special attention to increasing the Body Mass Index (BMI) owned to the Normal BMI level. Therefore, paying attention to physical activity patterns is necessary to adjust BMI to suit body conditions. The results of research by Habut et al. (2015) show that there is a relationship between physical activity and dynamic balance (maintenance of body balance when in a moving position) in students; students are tried to continuously regulate and maintain eating/consumption patterns, physical activity patterns, regulating lifestyles and other things that can make a person experience a decrease or increase in body mass index. Factors that can affect a person's BMI are age, gender, genetics, diet, and physical activity (Yusuf & Ibrahim, 2019). This study is in line with the research results proving that fiscal activity is one of the factors influencing BMI (Body et al.) (Habut et al., 2018; Indahsari & Mahali, 2019).

In addition to body mass index data, online learning can impact students' physical fitness. Thus it can be said that if students who have obesity, they will have difficulty moving. In addition to body mass index data, researchers also conducted physical fitness tests to determine the level of physical fitness during the Covid-19 pandemic. The results of physical fitness test data with multi fitness test can be explained that a sample of 20 with details of 2 people (10%) get a score less once, 16 people (80%) get a scoreless, and only two people (10%) get a score of enough meaning from the percentage of physical fitness Students at SMPN 1 Losari during the pandemic through online learning were 19 students or (90%) with low physical fitness. Thus, students' body mass index and physical fitness during learning are in a low category.

The presentation illustrates that before the Covid-19 pandemic, much PJOK learning was carried out outside the classroom or offline in the field. However, after the pandemic, the implementation of PJOK learning changed to online learning, which sports teachers have yet to become accustomed to PJOK online learning. Limited space and time because it is online will also impact the quality of the body mass index and physical fitness of students.

Face-to-face learning is starting to be implemented again; this will still have an impact for the last two years during the pandemic with online learning, thus that online and offline learning will have a difference in the impact produced on the body mass index and physical fitness of students, therefore, according to researchers it is essential to study and know about the impact of online learning and offline PJOK in the body mass index and physical fitness of SMP Negeri 1 Losari agar students in the future can be evaluated to find steps to improve and improve physical fitness and also so that students have an average body mass index or do not experience obesity or obesity during the Covid 19 pandemic.
METHOD

The research method is a comparative quantitative research method with a comparative nature. Comparative research is used to compare similarities or differences. So comparative research is a type of research that compares several groups against a particular variable (Arikunto, 2013). Population is the overall subject of study (Arikunto, 2013). So after understanding the expert opinion above, the population in this study is all students at SMPN 1 Losari, which amounts to 120 students. The sampling technique used by researchers using Saturated Sampling. Saturated sampling is a sampling technique when all population members are used as samples (Sugiyono, 2014). Based on the above theory, the researcher wants to take all the population to be sampled. So the sample in the study was all class VIII students with 120 people.

The research variables consist of independent variables and dependent variables, which include PJ OK learning before the pandemic and PJOK learning during the pandemic, which includes dependent variables like body mass index and physical fitness. Data collection techniques through initial pretests during the pandemic during learning by conducting physical fitness tests and body mass index, then conducting final tests after offline learning with physical fitness tests and body mass index. The body mass index research instrument uses a manual weight scale. At the same time, height is measured using a microtonal with an accuracy of 0.1 cm, as for measuring physical fitness using the bleep test. This study used inferential statistics with the help of SPSS 25 to test the hypothesis with an independent sample t-test.

FINDINGS AND DISCUSSION

Findings

Based on the body mass index research data, it can be illustrated that BMI during PJOK learning before the Covid-19 pandemic male students had a mean of 20.46 and during the pandemic 20.92 while female students before the pandemic had a mean of 20.98 and during the pandemic 21.48. Male students who had an average body before the pandemic had a mean of 19.85, and during the pandemic, 19.89. In contrast, female students who had an average body before the pandemic had a mean of 20.52, and during the pandemic, 20.42. However, students were obese during the pandemic, male students had a mean of 25.42, and female students had a mean of 25.65. Male students experienced pre-obese before the pandemic with a mean of 23.65, and during the pandemic, with a mean of 23.44. Meanwhile, female students experienced pre-obese before the pandemic with a mean of 23.67, and during the pandemic, with a mean of 24.05. This is because, during the Covid-19 pandemic, PJOK learning was carried out online, so there was a lack of physical activity or sports in students because it was online, which resulted in students' eating and movement patterns eating more, sleeping, and lack of exercise so that it had an impact on the body that was overweight. The similarity test
results of the two average final test samples t-Count value = 2.440 greater than t-Table value = 0.676 and signification value 0.00 < 0.05. Thus, the hypothesis is accepted, or there are differences in the impact of PJOK learning before and during the Covid-19 pandemic on the body mass index in students at SMPN 1 Losari.

In general, weight gain is due to the body getting nutritious food intake. A person who does much physical activity will lose energy; the intake of food consumed produces energy. However, the imbalance of food intake with physical activity that is carried out causes the body to be not ideal; if food intake is more and physical activity is less likely, the body mass index will increase, and vice versa.

Lack of physical activity in daily activities is also one of the risk factors for increasing BMI values (Nurmalia, 2011, p. 10). Destructive activity patterns will disrupt energy balance, where the incoming energy is greater than the energy that comes out, so it will cause fat accumulation, and children will look fatter. Therefore, the energy imbalance that occurs can lead to overweight and obesity. Being overweight can be said to be obese; with the fat category, it can be seen physically that an obese child is more silent and difficult to move. Children who fall into the fat category must do much physical activity because, with activity, there will be burning calories (Anjali, 2008, p. 17); with burning calories in the body, the fat in the body will decrease little by little according to the routine or not someone does activities. Lack of activity will also affect bone growth, bone mass, and bone flexibility. So children whose activity is less will have disturbances in bone growth; it can be said that bone growth is not optimal because physical activity will trigger bone growth hormone. Other bone disorders will easily fracture and bone loss due to less bone composition (Miftah, 2010: 7). Body mass index is a translation of the term Body Mass Index (BMI). BMI is a simple tool to monitor nutritional status, especially those related to deficiency and overweight (Nyoman, 2002, p. 60).

Excess weight negatively affects a person's movements. When someone has excess weight or obesity, it will undoubtedly impact a person's limited movement (Moeloek, 2008: 8). Of course, people with excess weight will find it challenging to display material skills in exercising at school.

Discussion

The results of physical fitness research data can be illustrated that physical fitness during PJOK learning before the covid 19 pandemic male students had a mean of 36.14 and during the pandemic 33.73 while female students before the pandemic had a mean of 37.78 and during the pandemic 30.47. Male students who had less physical fitness before the pandemic had a mean of 30.52, and during the pandemic, 43.43. In comparison, female students who had less physical fitness before the pandemic had a mean of 43.43, and during the pandemic, 20.42. Male students who had less physical fitness before the pandemic had a mean of 36.75, and during the pandemic, 36.14. In comparison, female students who had less physical fitness before the pandemic had a
mean of 37.46 and during the pandemic 35.35. Male students who had moderate physical fitness before the pandemic had a mean of 42.21, and during the pandemic, 42.

In contrast, female students with moderate physical fitness before the pandemic had a mean of 23.67. The similarity test results of the two average final test samples $t$-Count value = 4.877 greater than $t$-Table value = 0.676 and signification value $0.00 < 0.05$. Thus, the hypothesis is accepted, or there are differences in the impact of PJOK learning before and during the Covid-19 pandemic on physical fitness in students at SMPN 1 Losari. Thus, researchers can conclude that there is an impact of PJOK learning before and during the COVID-19 pandemic. This is because, during the Covid-19 pandemic, PJOK learning was carried out online, so the lack of physical activity or sports in students, because it was through online, resulted in the lack of movement of students to eat, sleep and lack of exercise, which had an impact on student's physical fitness.

The above results are corroborated by several research studies that have been carried out, which state that, in essence, there is a relationship between physical activity (physical activity) and physical fitness (physical fitness). Among children and adolescents, physical activity (PA) is associated with more benefits, including lower rates of obesity, improved cardiovascular and muscular fitness, higher bone mineral density, improved psychosocial health, and academic achievement (De Bate, Gabriel, Zwald, Huberty, & Zhang, 2009). The above quote explains the benefits of physical activity that are associated with lower rates of obesity, improved cardiovascular and muscular fitness, high bone density, improved psychosocial health, and academic achievement. Physical activity is essential for improving cardiorespiratory fitness. Several studies have demonstrated that more active children have better cardiorespiratory fitness than inactive ones (Hsieh et al., &; Chang, 2014). That is, physical activity is essential to improve cardiorespiratory fitness. Several studies have shown that more active children have better cardiorespiratory fitness than inactive children. Physical activity is positively related to cardiorespiratory fitness in children and youth, and both preadolescents and adolescents can improve cardiorespiratory fitness with exercise training (WHO, 2010, p. 19). This means that physical activity is related to the cardiorespiratory fitness of children and adolescents, and adolescence can improve cardiorespiratory fitness with exercise training. In addition, research conducted by Hsieh, Chen, Huang, Chen, Li, & Chang, Yi-Ching & Robert, and Desi Ardiyani also helped strengthen the above theories. The study by Hsieh, Chen, Huang, Chen, Li, & Chang (2014) revealed a significant relationship between BMI and physical activity and cardiorespiratory endurance level. Yi-Ching & Robert (2001) say a significant and positively correlated relationship exists between physical activity and physical fitness as measured by an 8-mile running test. From some of the quotes above, it can be concluded that physical activity affects a person's physical fitness; if a person's physical
activity is high, it can be said that his physical fitness is also high.

In their book Concepts of Physical Fitness with Laboratories, Corbin & Lindsey (1997: 5) say: "Physical fitness is the body's ability to function efficiently and effectively. It consists of health-related physical fitness and skill-related physical fitness, which have at least eleven different components, each of which contributes to total quality of life."

The quote explains that physical fitness is the ability of the body to function efficiently and effectively. Physical fitness consists of health-related fitness and skill-related fitness, totaling 11 components, each contributing to quality of life. Fitness components include health-related components such as body composition, cardiorespiratory fitness, flexibility, muscular endurance, and strength. Components of skills are agility, balance, coordination, explosive power, reaction speed, and speed (Corbin & Lindsey, 2007: 5-8).

From some quotes and research results above, it can be concluded that physical activity affects a person's physical fitness; if it is high, then his physical fitness is also high. Thus, it can be concluded that the physical activity of SMPN 1 Losari students has low physical activity, which impacts the index of body mass and low physical fitness.

Low physical fitness results due to an unbalanced healthy lifestyle. Low physical fitness data shows that there is an imbalance between intake, rest, and exercise (Irianto, 2006: 2). In addition, lifestyle is also a thing that can make physical fitness low or even very low. A sedentary lifestyle (relaxing, sitting around) is seen when teenagers are at home. Besides that, teenagers now sit and use gadgets, resulting in silence and ultimately impacting the student's physical fitness. Based on low physical fitness in adolescents. Therefore, the role of parents, schools, and village governments should encourage (motivation) and provide facilities for adolescents to be willing and responsible for their physical fitness. Good facilities to maintain fitness are sports facilities such as bicycles, swimming, jogging, basketball, volleyball, and so on that can be provided by parents and schools. A good encouragement or motivation is to invite teenagers to regularly do sports activities carried out by parents so that adolescents can get used to exercising, which will become a routine and essential activity.

CONCLUSION

Based on the results of the hypothesis test, it can be concluded that:

a. There is an Impact of Physical Education, Sports, and Health Learning Before and During the Covid-19 Pandemic on the Body Mass Index in Students at SMPN 1 Losari.

b. There is an Impact of Physical Education Learning in Sports and Health Before and During the Covid 19 Pandemic on Physical Fitness in Students at SMPN 1 Losari

REFERENCES

Aji, R. H. S. (2020). Dampak Covid-19 pada Pendidikan di Indonesia: Sekolah,
Keterampilan, dan Proses Pembelajaran, 


Centers for Disease Control and Prevention. Body mass index: Considerations for practitioners. Cdc [Internet]. 2011:1-4


Ibnu Riyadi¹, Setya Rahayu², Sri Sumartiningsih³ / JUARA: Jurnal Olahraga 8 (2) (2023)


Pangondian, Roman A. (2019). Faktor-Faktor Yang Mempengaruhi Kesuksesan Pembelajaran Daring Dalam Revolusi Industri 4.0. Seminar Nasional Teknologi Komputer & Sains (SAINTEKS). 57


http://penjaskesrek.fkip.uns.ac.id. 11(2), 71–78.