

ORIGINAL ARTICLE

Physical Activity in Adolescents during Covid-19 Pandemic Based on Gender

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ABSTRACT

Introduction: This study aims to describe the physical activity of adolescents during the Covid-19 pandemic. **Methods:** The research method used is descriptive quantitative. Samples taken were 900 adolescents aged 15-17 years (350 boys and 550 girls) in Bandung city with snowball sampling technique. The process of collecting data used questionnaires which referred to The International Physical Activity Questionnaire (IPAQ). IPAQ form were structured to provide separate scores MET (Metabolic Equivalent of Task) on walking, moderate-intensity and vigorous-intensity activity. MET is used to measure the intensity of physical activity. MET-minutes will be converted into three categories of physical activity, namely low, moderate, and high. **Results:** General physical activity of adolescent is 49.7% in the low category, 27.8% moderate, and 22.6% high. While the percentage of physical activity categories based on gender is as follows: for boys 38.9% low, 25.1% moderate, and 36% high, while for girls: 56.5% low, 29.5% moderate, and 14% high. **Conclusion:** Physical activity among adolescents during the COVID-19 pandemic is in the low category, both in general and based on gender.

Keywords: Physical activity, Gender, COVID-19, Adolescent, Indonesia

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INTRODUCTION

The World Health Organization (WHO) declared the outbreak of a pandemic (1). Positive cases in Indonesia were first detected on March 2, 2020 and spreaded to 34 provinces within one month. Covid-19 transmission occurs through droplets and contact with the virus, then the virus can enter the open mucosa (2). This virus attacks the respiratory system, causing minor disorders of the respiratory system, severe lung infections, and death. Primary prevention to break the chain of transmission is by limiting the mobilization of people at risk until the incubation period (2). Therefore, the government has imposed large-scale social restrictions (PSBB) in several areas. On the other hand, this policy has had a negative impact on several sectors such as the economy, socio-economy, and education. One of them is learning activities carried out at home or known as

the Home Study Program (BDR). Indirectly, this program reduces daily physical activity in large quantities such as walking, driving, exercising to playing. This causes the daily physical activity of adolescents to decrease because they will spend more time at home.

The reduced physical activity carried out by adolescents during this pandemic has the potential to form a sedentary lifestyle which is the main cause of cardiovascular diseases (CVDs) and even death (3). Another consequences of sedentary lifestyle is the increased risk of overweight and obese youth becoming overweight adults (4). In addition, lack of physical activity can also cause a decrease in the immune system in the body (5). This immune system plays an important role in the course of Covid-19, although the mechanism cannot be explained with certainty (6).

Physical activity carried out regularly has many benefits for individuals at all ages in improving mental health (7) and quality of life (8). The World Health Organization (WHO) has established guidelines for the minimum amount of physical activity that children and

adolescents aged 5-17 years old need to do to maintain health and fitness. In this guideline, it is stated that the physical activity they do at least 60 minutes every day with moderate to high intensity, if it is done for more than 60 minutes then the benefits will be more; besides that most of the daily physical activity should be aerobic at least 3 times a week (9).

In Indonesia, there is no research that discusses the description of adolescent physical activity during this pandemic. The literature study entitled "Understanding of Young People About COVID-19 During Early Outbreak in Indonesia" shows that adolescents have a fairly good initial understanding of COVID-19 during the initial outbreak in Indonesia (10). However, the application of adolescents understanding of preventing the spread of covid-19 in Indonesia by applying a healthy lifestyle, such as being physically active, is not yet known. Therefore, this study was conducted with the aim to describe physical activity of adolescents during the Covid-19 pandemic based on gender.

MATERIALS AND METHODS

This study was conducted in accordance with the provision of ethical clearance guaranteed by The Research Ethics Committee of STKIP Pasundan Cimahi. 1/VII/EA/LPPM/2021

Participants

The research method used in this research is descriptive quantitative. Samples taken are adolescents aged 15 to 17 years from fifteen senior high schools in the city of Bandung, amounting to 900 people (350 boys and 550 girls). This study was conducted for three months from august to october.

Sampling procedures

Sampling was done using the snowball sampling technique. Researchers gave questionnaires (via google form) to students, either directly or through sports teachers in various schools in September 2020. Then the students passed the questionnaire to other students so that the number of samples continued to increase to the desired limit. This was done because of the limitations of researchers to take sample data directly during the Covid-19 pandemic.

Instrument

In this study, a non-test instrument was used, namely a questionnaire that referred to The International Physical Activity Questionnaire (IPAQ). IPAQ is divided into two versions, namely long form and short form (11). The version recommended for national monitoring is the short form version that contains questions about physical activity during the last 7 days (12,13). This version provides information on three levels of physical activity intensity, namely: a) walking, b) moderate, and

c) vigorous. MET (Metabolic Equivalent of Task) is used to measure the intensity of physical activity.

MET is the unit used to estimate the energy expended. 1 MET is the energy released by a person in a relaxed sitting condition (14). Based on the guidelines for data processing and analysis of IPAQ, METs for walking activities were 3.3/minute, moderate 4/minute, and high 8/minute. MET-minutes are calculated by multiplying the METs by the time (duration of activity in minutes) for a day or a week. Furthermore, MET-minutes will be converted into three categories of physical activity, namely low, moderate, and high. Table I describes the categories of physical activity levels according to The International Council of Sport Science and Physical Education.

Table I: Criteria for category physical activity table was adopted from IPAQ

No	Cate-gory	Criteria
1	Low	No activity is reported OR Some activity is reported but not enough to meet Categories 2 or 3
2	Mod-erate	3 or more days of vigorous activity of at least 20 minutes per day OR 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day OR 5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 600 MET-minutes/ week.
3	High	vigorous-intensity activity on at least 3 days achiev-ing a minimum Total physical activity of at least 1500 MET-minutes/week OR 7 or more days of any combination of walking, moderate- or vigorous-intensity activities accumu-lating at least 3000 MET-minutes/week

Data analysis

Questionnaire data were collected and processed using SPSS 17.0. The data analysis technique used to describe the physical activity of adolescents during the Covid-19 pandemic, both in general and based on gender, was descriptive statistical analysis.

RESULT

The socio-demographic characteristics of study population are illustrated in Table II. Those characteristics include age, gender and grade of school.

After processing the data, it was found that the boys MET-minutes score had a standard deviation of 1627,746, an average of 1749.53, a minimum score, 0 and a maximum score of 7,433. Meanwhile, for adolescent girls the standard deviation was 1059.378, the mean was 964.68, the minimum score was 0, and the maximum score was 8,736 as shown in Table III.

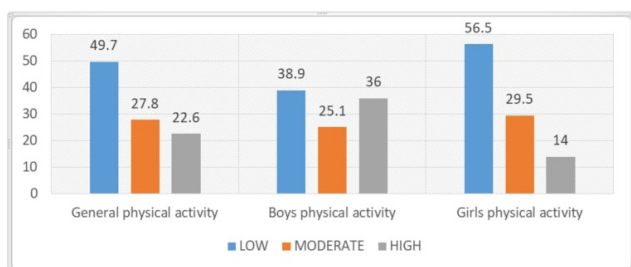
Table II: Socio-Demographic Characteristics

Variables	Number of participants (n)	Percentage (%)
Age:		
15	275	31
16	440	49
17	185	21
	900	100
Gender:		
Boy	350	39
Girl	550	61
	900	100
Grade:		
X	326	36
XI	492	55
XII	82	9
	900	100

Table III: Descriptive statistics met-minutes physical activity

Gender	N	Physical Activities			
		Minimum	Maximum	Mean	SD
Male	350	0	7433	1749,53	1627.746
Female	550	0	8736	964,68	1059.378

From Figure 1, it appears that the overall percentage of adolescent physical activity is 49.7% in the low category, 27.8% moderate, and 22.6% high. While the percentage of physical activity categories based on gender is as follows: for boys 38.9% low, 25.1% moderate, and 36% high, while for girls: 56.5% low, 29.5% moderate, and 14% high.

**Figure 1: Percentage of adolescent physical activity**

DISCUSSION

The results showed that physical activity in adolescents was in the low category with a percentage of 49.7%. In terms of gender, there are significant differences between physical activity between boys and girls. In the low category, the percentage of physical activity for boys was 38.9% while for girls 56.5%. Meanwhile, in the high category, the percentage of physical activity for

boys was 36% while for girls was 14%. This shows that the physical activity of boys adolescents is higher than girls adolescents. Likewise, the WHO report on the level of physical inactivity shows that girls are more inactive (32%) than boys (23%) (8). Another study states that there is a trend that boys physical activity involvement is higher than that of girls (15). Boys are more motivated to participate in organized physical activities due to psychological factors (feelings of pleasure, interest, and wanting to be in shape) and social factors (support from family or friends); Meanwhile, girls are more interested in unorganized physical activity due to psychological factors only (interest, wanting to be in shape, and without competition) (15). This shows that boys have more motives than girls to participate in physical activity. This is the reason why boys adolescents are more involved in activities than girls adolescents.

Researchers suspect there are 4 main causes of the dominance of this low category. First, the home study program (BDR) which reduces physical activity. In the pre-pandemic period, students did activities at school for 7-8 hours. Various activities are carried out such as studying in class, exercising, walking to or from school or other activities after school. However, during the Covid-19 pandemic, physical activity could not be done so that their physical activity was limited to at home. In addition, the use of less productive free time such as playing games, surfing on social media, and watching excessively and irregular sleep patterns will have a negative impact on body health. There are at least two main aspects that make physical activity very important to do during this pandemic, namely regular physical activity that can increase the immune system in the body (5) and improve mental health (16).

Second, the government's role in promoting physical activity (especially sports) has not been optimal. During this pandemic, the preventive measures that are often echoed are hand washing and social distancing, even though doing physical activity is no less important. One thing that can be relied on to promote physical activity for adolescents is physical education in schools. Physical education in schools is able to develop physical literacy, skills, attitudes, knowledge, understanding and interest in actively participating in sports which are the basis of lifestyle during adulthood (The International Council of Sport Science and Physical Education). Great hope for physical education teachers to be able to contribute to the health of children and adolescents through physical education activities in schools (17). Therefore, the main goal of Physical Education in this pandemic should be to promote a healthy lifestyle among adolescents as an effort to prevent the transmission of the Covid-19 outbreak. This means that there needs to be changes or adjustments to the curriculum regarding learning goals and outcomes. That way, the role of Physical Education in schools will be maximized and in line with expectations in this pandemic.

Third, there is a lack of knowledge about the role of physical activity as an effort to prevent the transmission of covid-19. A study on the knowledge of adolescents (aged 10-25 years) about Covid-19 in Indonesia shows that adolescents have a fairly good initial knowledge of COVID-19 but lack understanding of preventive measures such as hand washing and physical distancing (10). In this study, one of the six preventive steps during the Covid-19 pandemic was applying a healthy lifestyle, which includes physical activity. Only 14.64% of participants chose to apply a healthy lifestyle as a preventive measure in their daily lives.

A lack of knowledge about the world of physical activity makes a person a stranger. The types of participants in the social world are divided into four, namely strangers, tourists, regular, and insiders (18). Stranger, They don't understand much about the urgency of physical activity so they ignore things related to physical activity. Tourists, they have curiosity and are interested in participating in physical activities, but it is only temporary. Regular, they are relatively committed to the world of physical activity and understand its meaning so that they integrate themselves into the world of physical activity. Insiders, they are involved in the world of physical activity, their life and identity are very much influenced by the meanings and values contained therein. This division of the types of participants depends on one's knowledge and proximity to the world of physical activity. The deeper one's involvement in a certain social world, the better someone will see and understand it (19). From the explanation of this type of participant, it is hoped that adolescents in Indonesia are included in the regular and insider types.

Fourth, there is a tendency for teenagers to not make physical activity a culture. Teenagers are generally less interested in physical activity. This is due to significant technological developments that have a major impact on social and cultural changes, one of which is in the entertainment sector. Nowadays, online games and social media are part of the daily lives of teenagers. The results showed that 85% of boys adolescents spent a lot of their time playing online games (20). The same thing happened to the use of social media. The Pew Research Center reports that at least 92% of adolescents are active on social media, the 13-17 age group is a very heavy social media user (21). Excessive use of online games and social media makes teenagers have a tendency to live a sedentary lifestyle so that the portion for doing physical activity is relatively small. This indicates that adolescents have not made physical activity a culture in their daily lives.

The various problems above, at least can be overcome by implementing the four strategies set by WHO to increase physical activity with four policy action areas, namely: active societies, active environment, active people and active systems (9).

CONCLUSION

Physical activity among adolescents during the COVID-19 pandemic is in the low category, both in general and based on gender. Therefore, the promotion of physical literacy is very important in fostering physical activity among adolescents and even all levels of Indonesian society during the COVID-19 pandemic.

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