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## Physical Activity Level Mapping of Senior High School Students in West Java

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### Abstrak

Kebiasaan untuk beraktivitas fisik sejak dini berperan penting dalam membangun gaya hidup yang sehat serta derajat kebugaran di kemudian hari. Riset ini berupaya untuk mengetahui seberapa besar tingkat aktivitas fisik siswa SMA di Jawa Barat, yang pada akhirnya dijadikan acuan dan tolak ukur dalam pembuatan kebijakan dilingkungan olahraga. Metode yang digunakan dalam penelitian ini merupakan random sampling, tersebar di 5 kota/kab yang ada di Jawa Barat. Metode penelitian ini menggunakan metode penelitian deskriptif kuantitatif. Data tingkat aktivitas fisik didapatkan dari kuesioner IPAQ (International Physical Activity Questionnaire). Hasil dari kuesioner tersebut rata-rata tingkat aktivitas fisik dalam kategori tinggi, dengan nilai metabolic equivalent (METs)  $3520.2 (\pm 2774.3)$ . Paling tinggi tingkat aktivitas fisik di Kota Tasikmalaya, sedangkan paling rendah ada di Kabupaten Kuningan. Namun dari kelima kota tersebut tidak ada perbedaan yang signifikan. Kesimpulannya kategori tingkat aktivitas fisik siswa SMA Jawa Barat tinggi, namun ada beberapa catatan karena mereka memiliki durasi duduk yang cukup tinggi serta kebiasaan bermain permainan daring yang terlalu sering.

### Abstract

Early physical activity habit plays an important role in building a healthy lifestyle and the degree of fitness in the future. This research was aimed at finding out the level of physical activity of high school students in West Java. The result of the study could be used as a reference and benchmark for policy making in sports. The method used in this study was random sampling, spread in 5 cities / districts in West Java. The data of the level of physical activity were obtained from the IPAQ questionnaire (International Physical Activity Questionnaire). The data of the questionnaire showed that the average level of physical activity was in the high category, with metabolic equivalent values (METs)  $1520.80 \pm 1444.50$ . The highest level of physical activity was in Tasikmalaya City, while the lowest was in Kuningan District. However, among the five cities, there was no significant difference. The conclusion is that the physical activity level of West Java high school students is high. However, it should be noted that they also have a fairly high duration of sitting and game playing habits.

## INTRODUCTION

Physical activity is an important part of fitness and health because physical activity is the basis for someone to maintain fitness and health. It is proven by the issuance of a guide to physical activity by the American government to reduce and combat degenerative diseases such as diabetes, obesity, etc. Even some diseases such as cardiovascular disorders (CVD) begin to increase and some research is associated with the level of physical activity. It is estimated that one in three men is infected with CVD, accounting for 47.4% of all male deaths. Coronary Heart Disease (CHD) and cerebrovascular disease (stroke), the two most common forms of CVD, account for more than 90% of all CVD deaths in men. Although CVD and some associated risk factors have declined over the last few decades among American men (Benjamin, 2017), CVD continues to increase among Arab men, which are the main causes of death, which affect Arabia men at a younger age (Almahmeed, 2012). This fact has been explained, in part, by lack of education, obesity, unhealthy eating habits, physical activity, and low income (Center of Disease Control and Prevention, 2002).

More than 1.9 million global deaths per year can be prevented with an adequate level of physical activity (Guthold, 2010). Even young people in developing countries, have a tendency to have a low level of physical activity (Chen, 2005). The level of physical activity tends to decrease in adolescence and the habit continues into adulthood (Tammelin, 2003). It has been established that increased activity during adolescence reduces the risk of obesity as an adult. Some of the causes of decreased physical activity due to the habit of using electronic devices, this is in tandem with increasing obesity (Tremblay, 2011).

The level of physical activity of Indonesian people is still worrying, the latest data in 2018 there are 33.5% of Indonesian people who fall into the category of lack of physical activity, or those who exercise less than 150 minutes in one week. This number is increasing compared with the data in 2013, which reached 26.1% (Basic Health Research, 2018). The increasing level of the lack of physical activity is allegedly related to the increasing habits of the community towards the use of electronic devices. It is just like the results of previous research in 2011 by Tremblay. In urban areas, the level

of physical activity seems to be getting lower. The proof is that DKI Jakarta is placed at the lowest level of physical activity compared to other regions in Indonesia (Basic Health Research, 2018). The Eastern Mediterranean Region (EMR) states that there are lifestyle changes that greatly impact on reducing the level of physical activity and behavior change (Musaiger, 2004).

It seems that change in lifestyle habits and physical activity is increasingly reduced by almost all regions of the world. Previously, it has been explained that America and Indonesia experienced these problems. It turns out that it is experienced by Arab countries as well. The majority of teenagers in Arab countries do not meet the recommended daily physical activity guidelines of at least 60 minutes of physical activity per day. More than 85% of girls and 75% of boys aged 13-15 in some Arab countries are not in the category of minimum daily physical activity (Guthold, 2010). From the lack of physical activity, Qatar is now one of the countries with the highest obesity rates in the Arabian Gulf region. Statistics show that about 32% of boys and adolescents in Qatar are overweight or obese compared to 34% of girls (Farrag, 2017).

The sedentary or silent behavior is a series of activities that actually require energy expenditure, including sedentary activities such as long sitting at work or school, watching TV, and using a computer or playing video games (Biddle, 2010). Time spent on sedentary activities is actually defined as the number of hours per week spent during free time in front of the screen, such as computer, video game, television, and tablet (Koezuka, 2006). Evidence shows that watching TV every day for 2 hours or more has to do with a decrease in fitness and psychological. The World Health Organization (WHO) recommends adolescents between the ages of 5 and 17 years to do physical activity for at least 60 minutes, with moderate to strong intensity every day to improve or maintain cardiorespiratory health and muscle fitness (WHO, 2017). In addition, it is recommended that teenagers spend no more than 2 hours per day on activities to settle in front of the screen, such as watching TV (Iannotti, 2009).

Adolescence is considered as an ideal way to get used to a good physique (Paudel, 2014). Therefore, it is important for young people who are accustomed to physical activities. At present, there are still many stud-

ies related to physical activity in Indonesia, especially among teenagers. The results of Riskesdas 2018 need to be followed up specifically for the conical sample to find and decompose the physical activity. Thus, it is expected to be easier to find solutions to answer problems about physical activity.

## METHODS

This research uses a quantitative descriptive method, using a questionnaire distributed to the respondents. The data selection method is conducted by selecting respondents using random sampling, involving respondents scattered in five cities/districts in West Java Province. The five cities consist of Bandung City, Tasikmalaya City, Garut Regency, Kuningan Regency and Majalengka Regency. The five cities are chosen because based on previous research conducted at ITB, many ITB students come from the five Cities/Regencies. Since ITB is a representative of Indonesian students, this study refers to the majority of ITB students who come from West Java. The measurement in this study uses the International Physical Activity Questionnaire (IPAQ). The same measurement method which is used by WHO to determine the level of physical activity in several countries of the world which is then translated into Bahasa Indonesia which has been consulted with Indonesian language experts, and used in research in 2017 for ITB students (Sunadi, 2017).

The questionnaire consists of three main points. The first personal data consists of age, height, weight, to the medical record. The second part consists of the core questionnaire, which is about daily physical activity habits, ranging from low to heavy physical activity. And the last part consists of questions that support data from the results of the questions in part two.

Before conducting data collection, this research procedure has passed the research ethics test from the research ethics commission of the Bandung City Police. Before filling out the questionnaire, the respondents are briefed before filling out the questionnaire, so that the questions and the answers are targeted, in addition, the respondents are given information about the benefits of the research conducted. A total of 450 high school students in West Java have become respondents. After the data is collected, data analysis is performed using SPSS 10.

## RESULT AND DISCUSSION

Of all respondents, the average students are 16.5 years old ( $\pm 1.01$ ), or they are in grade 10 and grade 11. All respondents are not in grade 12 or the last level of high school level. The average height is 168.1 ( $\pm 6.1$ ) cm, and the average weight is 58.5 ( $\pm 11.1$ ) kg. From the average height and weight, it is obtained an average body mass index (BMI) of 20.9 ( $\pm 3.7$ ), that number is included in the normal category. From all questions about physical activity, it is obtained Metabolic Equivalents (METs) of 3520.2 ( $\pm 2774.3$ ). This number is included in the category of high level of physical activity.

However, from the results explained above, there are some results that need to be further discussed from the part three questionnaires. The data on game play habits in one day reaches 113.9 ( $\pm 97.1$ ) minutes or almost 2 hours in one day. The games in this category are games that are in a cell phone. However, when it is asked about the duration of study at home, the average time is 14.7 ( $\pm 3.7$ ) minutes, which is relatively short time to study.

**Table 1.** Basic Questionnaire Data

	Students
Age	16.5 ( $\pm 1.01$ )
Height	168.1 ( $\pm 6.1$ )
Weight	58.5 ( $\pm 11.1$ )
IMT	20.9 ( $\pm 3.7$ )
METs Total	3520.2( $\pm 2774.3$ )
Game Play Duration	113.9 ( $\pm 97.1$ )

Other data states that 37% of students participate in tutoring outside of school and 46% of students join sports extracurricular or sports activities outside of school. Even in the questionnaire, 49% of students only got exercise when the subjects and extracurricular activities are at school.

In other words, the role of subjects in school on the level of physical activity of students is very large, as well as the role of sports extracurricular activities. The sport extracurricular helps increase physical activity of students, who have been sitting for too long during class lessons during school. From the results of this study, it is expected that sports subjects in 12th grade or the last level in high school will continue, because some regions have now eliminated 12th grade sports subjects

since they are focused on studying subjects that will be on the final exam later. However, the worrying thing is when students experience boredom about the subjects to be tested, they do not have other activities that can eliminate fatigue like those in sports subjects. Though, adequate physical activity can help someone avoid mental illness or depression and slow down senility (ISPAH, 2017). That way, sports subject in the 12th grade is not appropriate if it is considered as an obstacle for students to study better in preparing for their final exams. In addition, the majority of the students not only study in school, but many of them get tutoring outside of school.

The determination of sports subjects at 12th grade should also be supported by other policies outside the school such as routine sports movements or schedules together in a school environment consisting of teachers, staffs and students. Broader policies can be undertaken by local or central government, such as infrastructure development for pedestrians and cyclists, as well as reproducing or improving open spaces and city parks (WHO, 2018). Because when students at grade 12 do not have a regular schedule for exercising through sports subjects, their fitness will decrease, which impacts their fitness which is at a very low level when entering college (Sunadi, 2017). The low fitness of them when they first enter college is unfortunate, because the density of activities at the beginning of the lecture requires excellent fitness. If students do not have excellent fitness it is unfortunate if in the end students are more often sick than spending time to adapt to the new environment on campus or the culture of lectures.

Guidelines for increasing physical activity in the community remain within safe limit which have been provided by WHO in 2018 with the title The Global Action Plan on Physical Activity 2018-2030. However, all of that will work if there is collaboration of various parties, such as the health department, the sports department, the environmental service, the education service, and the culture service (ISPAH, 2017).

## CONCLUSION

From the data obtained, it is seen that the role of sports subjects and extracurricular impact and help students to increase their physical activity, which makes the level of physical activity of high school students in West Java included in the high category. Another hope is to continue implementing sports subjects at 12th grade or the final high school level knowing that sports subject has the positive benefits on physical and mental health.

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