

## ORIGINAL ARTICLE

# Relationship Between Students' Perceived Exercise Benefit and Physical Activity Level During Covid-19 Pandemic in Indonesia

Yati Ruhayati, Imas Damayanti, Nur Indri Rahayu, Asep Hadi

Department of Health Education and Recreation, Faculty of Sport and Health Education, Universitas Pendidikan Indonesia, 40154 Bandung, Indonesia.

## ABSTRACT

**Introduction:** During the Covid-19 pandemic in Indonesia, various prevention efforts have been carried out, including the 'stay at home' campaign and social restrictions. However, as long as this is done, it is still emphasized the importance of an active lifestyle in order to maintain and increase the body's resistance to infection. This study tries to determine the relationship between the level of physical activity of students with the perceived benefits of exercise they have. **Methods:** It is a correlation study. This study used two questionnaires distributed online, namely GPAQ (Global physical activity Questionnaire) and EBBS (Exercise Benefit Barriers Scale). The analysis was using the Spearman Correlation test using SPSS version 26. **Results:** The subjects involved were 389 students using cluster random sampling in eight faculties of the University of Education of Indonesia. The results showed that there is a relationship between the level of physical activity of students and their perceived benefits of exercise ( $p=0,000<0,05$ ). **Conclusion:** This shows a rationalization for continuing to provide counselling about the benefits of exercise. Especially during many measures taken to restrict people daily natural movement during corona virus pandemic.

**Keywords:** Physical activity, Exercise, Covid-19 pandemic

## Corresponding Author:

Imas Damayanti, dr. M.Kes.  
Email: [nailaaskanaratifa@gmail.com](mailto:nailaaskanaratifa@gmail.com)  
Tel: +62-82129203396

## INTRODUCTION

SARS-CoV-2 or Severe Acute Respiratory Syndrome Coronavirus 2 is a virus that mainly targets human respiratory organs (1). The disease is called COVID-19. In current conditions, the corona virus is not an epidemic that can be ignored. When viewed from the symptoms, people would think that it was only just ordinary influenza, but for medical analysis this virus is quite dangerous and deadly. Because the patient has severe cardiovascular damage. The condition of the corona virus in Indonesia until May there were 27,549 positive people, 7,935 people recovered and 1,663 people died, and it is estimated that cases of people who are positive for covid-19 will continue to increase if the public does not pay attention to the Health protocol recommended

by the World Health Organization (2). In Indonesia, various efforts have been made to prevent and reduce the number of sufferers of COVID-19. These efforts included the issuance of policies to restrict activities outside the home, working from home, school from home, as well as worshipping which is usually practiced in houses of worship to being carried out at home. Through a healthy lifestyle such as consuming nutritious food, drinking vitamins, and including exercising. Physical activity is any activity that involves body movement and increases a person's heart rate and respiration (3) physical activity is one of the most important factors of health for children, adolescents and adults (4).

Together with healthy lifestyle and behaviour, it is a direct factor that determines human health (4) Lack of healthy behaviour, especially in physical activity, is a contributing factor to health problems in both adolescents and adults. Where physical activity has a relationship or association with cardiovascular disease (5) In a study conducted on 200 female students in

England, the results of this study showed that there was a strong relationship between perceived benefits and barriers and exercises. Benefits are associated mostly with physical appearance (6) research conducted by Lovell, Ansari, & Parker, (7) shows that many people do not do enough physical activity because they have low perceived benefits to exercise and on the same time have high perceived barriers to exercise. The greatest benefits one perceived from exercise are physical appearance, also of psychological outlook and then followed by health prevention, life enhancement, lastly of social interaction.

Thus, the Indonesian people, including students, face two unfavourable realities. On one hand, social restrictions, campaigns to stay at home, and online schools are important steps to prevent the spread of the COVID-19 disease. But on the other hand, it naturally reduces the physical activity that was previously naturally carried out by students. In fact, to maintain and increase the body's resistance to infection, one must maintain the level of physical activity. Thus, WHO and the Indonesian government promote the benefits of exercise and an active lifestyle to the community during the COVID-19 pandemic. However, no research has been conducted to determine whether during the COVID-19 pandemic there is a relationship between a person's level of physical activity and the perceived benefits of exercise that he or she has, which is the goal of our study. This needs to be known to find out the benefits of promoting an active lifestyle and other supporting programs as part of preventing COVID-19. This research is unique from previous similar studies because it is conducted in Indonesia with much different health and cultural behaviour and because it is in covid-19 pandemic state. The situation that threatens the health and life that is presented in front of one's eyes is of course expected to have a lot of influence on a person's perception related to aspects of health care.

## **MATERIALS AND METHODS**

### **Study design**

This is a correlation study that is conducted in COVID-19 pandemic in Indonesia. It has been done from june 2019-july 2019.

### **Ethics approval**

Ethics approval is obtained from Centre of Research and Community Service (Letter of Statement Ethical Approval Number: B-0851/UN40.LP/PJ.00.00/2021). This research is conducted with regard to the subjects' protection and welfare throughout the protocol. Respondents were given full understanding about the research aim and procedure, and have given their consent.

### **Study population**

The population involved in this study were 34,612 active

UPI students, male and female, who came from the UPI Bumi Siliwangi campus and could be represented by each faculty, namely: Faculty of Science Education, Faculty of Art and Design, Faculty of Sports And Health Education, Faculty of Language and Literature Education, Faculty of Economics and Business Education, Faculty of Social Science Education, Faculty of Mathematics and Natural Science Education, Faculty of Technical and Vocational Education. All students at the time this research was conducted were experiencing online lectures due to the COVID-19 pandemic. The campus where lectures usually take place is closed due to local transmission. Students are also not allowed to carry out non-curricular activities such as club activities on campus. Most of the students returned to their respective hometowns.

### **Sample size calculation and sampling method**

The minimum number of samples taken was determined based on Isaac and Michael's table at a 5% confidence level. The minimum total sample is 344 people, but in this study the researchers managed to get as many as 389 respondents. Considering that the character of the student population may differ based on the faculty where they study, the sampling technique used is the cluster sampling technique, with faculties as clusters. This is done so that each faculty has a representative in this research.

The inclusion criteria used are all Universitas Pendidikan Indonesia's students who are actively registered, in good health and conducting online lectures, currently in Indonesia and subject to social restrictions from the government. The exclusion criteria used were students who were sick, on leave, internship or working in a place that did not work from home, were abroad or students who worked amateur or professional as athletes or dancers or other professions that required physical activity as part of profession.

### **Instrument**

The research instrument used a questionnaire regarding GLOBAL PHYSICAL ACTIVITY (GPAQ) and EXERCISE BENEFIT BARRIERS SCALE (EBBS). Global Physical Activity (GPAQ) was developed in 2002 by the World Health Organization (WHO). The reason for using the GPAQ instrument is because it has been tested for validity and reliability globally in 9 countries in the world (8).

Exercise Benefits Barriers Scale was developed by Karen R. Sechrist, Susan Noble Walker, and Nola J. Pender to respond to the need for an instrument to determine individual perceptions of the benefits and barriers to participating in sports. Where all items from the benefit subscales are scored on a 4-point Likert response format. Items for the scale were obtained inductively from interviews and from the literature.

The validity test was carried out with the corrected item

total correlation technique using the SPSS program and the reliability test was carried out on non-UPI students, then it was known that the Cronbach's Alpha value was  $0.911 > 0.700$ , it can be concluded that the overall questionnaire item was very close and reliable to use (9). This study uses a questionnaire in the form of google form to each student in the faculty campus of the University of Education of Indonesia. Questionnaire surveys are a popular data collection method for academic or marketing research in a variety of fields, data collection via online surveys has the potential to collect large amounts of data efficiently and easily (10).

### Data Analysis

The characteristics of the sample are displayed descriptively with percentages and averages. Physical activity level data were obtained in the form of Metabolic Equivalent (MET) values, while data on perceived exercise benefits were values 1 to 4. The normality test was carried out using the Kolmogorov-Smirnov test. The homogeneity test of the data was carried out with the Lavene's test. The correlation test was then carried out with the Spearman's rho test because the data were not normally distributed. Data analysis processing is done using SPSS ver 26.

## RESULTS

A sample of 389 people was obtained, the sample came from students of the Indonesian Education University from various faculties. Faculty of Science Education (FSE) 49 respondents, Faculty of Art and Design (FAD) 32 respondents, Faculty of Sports And Health Education (FSHE) 111 respondents, Faculty of Language and Literature Education (FLLE) 32 respondents, Faculty of Economics and Business Education (FEBE) 31 respondents, Faculty of Social Science Education (FSSE) 47 respondents, Faculty of Mathematics and Natural Science Education (FMNSE) 49 respondents, Faculty of Technical and Vocational Education (FTVE) 39 respondents. The sample consisted of male and female students totalling 262 boys, 127 girls and the sample average was 17-25 years old in their late adolescence.

### Perceived Exercise Benefit

Table I shows the results that participants who were university students that stayed at home during the Covid 19 pandemic, admitted that good perceived benefits of exercising ( $M=3,26$ ,  $SD=0.25$ ). It also showed that the greatest perceived benefit from exercise was physical performance ( $M=3,42$ ) followed by preventive health ( $M = 3.22$ ), psychological outlook ( $M=3,37$ ), life enhancement ( $M=3,19$ ), and social interaction ( $M=2,88$ ). Respondents rate preventive health, physical performance, psychological outlook and life enhancement  $>3$ , which mean as true agreement. Respondents see that the statements consist of factors that they see as benefits for exercising. As for social

**Table 1. Students' Perceived Exercise Benefit**

Subscale	Mean	SD
1. Life Enhancement Sub-scale	3,19	0,204
2. Physical performance Sub-scale	3,42	0,158
3. Psychological Outlook Sub-scale	3,37	0,135
4. Social Interaction Sub-scale	2,88	0,238
5. Preventive Health Sub-scale	3,22	0,240
Total	3,26	0,250

interaction, respondents only value it as lowest perceived benefit.

### Physical Activity level

Based on the data on Ttable II, it can be concluded that the MET average of UPI students in the COVID-19 pandemic is around 3204 MET. Then, the level of physical activity per week of UPI students in the COVID-19 pandemic is classified as Heavy, because in the GPAQ category if the MET value is  $> 3000$  then the physical activity is classified as heavy. The highest weekly MET average value was from FEBE with an average MET of 5724, then followed by FSHE with an average of 4370, FAD 3947, FSSE 3062, FSE 2537, FLLE 1830, FMNSE 1581 and the lowest was FTVE faculty with MET average is 1416. And based on the data above, it is also found that the average number of METs for men is greater than that of women, namely for male METs of 4621, while for the average number of METs of women, it is 2518 METs. This shows that the physical activity of men is heavier than women in the era of the COVID-19 pandemic.

**Table II: Physical Activity Level**

Variables	n	Mean	SD
gender	Male	127	4621
	Female	262	2518
Faculty	FEBE	31	5724,5
	FSHE	111	4370,7
	FAD	32	3947,7
	FSSE	47	3062,1
	FLLE	31	1830,4
	FMNSE	49	1581,1
	FTVE	39	1416,8
Total	389	3204	

**Correlation between perceived benefits of exercise and physical activity level**

Based on the results of statistical tests in Table III, it shows that there is a significant relationship between the perception of the benefits of exercising and the level of physical activity for Universitas Pendidikan Indonesia’s students in the era of the Covid 19 pandemic in Indonesia. This is indicated by the value of  $p = 0.000 < 0.05$ . While the results of the regression test showed the value of the correlation coefficient (R square) of 0.045 so that physical activity has a contribution effect on the perception of the benefits of exercising is 0.45%.

Table III: Correlation between Perceived exercise benefit and physical activity level

Variable	n	Spear- men’s rho sig	rR square
Perceived Exercise Benefit	389	0.000	0.45
Physical Activity Level			

**DISCUSSION**

One way to increase the body’s resistance to Covid-19 is to exercise (11). This has been recommended by many Institutions around the world. The community has also been given massive counselling about the importance of exercising when they have to stay at home. This exercise recommendation applies to all ages, from children to the elderly. This includes students who are young, and in the best physical condition (12).

However, these young people are the ones that many parties have previously been worried about considering that they are no longer exercising properly (13). Various studies have shown low levels of participation in sports and poor levels of physical fitness even in the pre-COVID-19 era.

Many factors influence students to exercise or physical activity which has the same benefits as exercise. The influencing factors can come from within or from the outside environment. Environmental factors such as peers, college life activities that force them to move, and other factors related to social activities certainly decreased during the Covid pandemic (14). So that the most influential factor is a factor from within themselves, namely their perception of the benefits of exercise and physical activity.

The results of this study focus merely among students who stay at home. It is proven that they have a fairly good level of physical activity, on average at moderate and high levels of physical activity (3204 MET / week). Some students even show high levels of physical activity (> 4000 MET / week).

The highest activity level per week was shown by UPI FPEB faculty students with an average MET of 5724, while the lowest activity level was shown by UPI students of the FPTK faculty with an average MET of 1416. Physical activity was higher than the level of physical activity of female students per week, with a MET mean of 4621 for boys and 2518 for girls.

As for the perceived benefit, it is shown the greatest perceived benefit from exercise was physical performance (M=3,42) followed by preventive health (M = 3.22), psychological outlook (M=3,79), life enhancement (M=3,19), and social interaction (M=2,88). Respondents’ rate preventive health, physical performance, psychological outlook and life enhancement >3, which mean as true agreement. Respondents see that the statements consist of factors that they see as benefits for exercising. As for social interaction, respondents only value it as lowest perceived benefit.

Based on data processing in this study, it was found that there was a significant relationship due to the value of  $P = 0.000 < 0.05$ . Thus, there is a relationship between the level of physical activity and the perceived benefits of exercising from Indonesian Education university students in the era of the corona virus pandemic in Indonesia. Thus it can be seen that at the student level, during the Covid 19 pandemic, students were still active physically and this was related to their perception of the benefits of exercise.

We can also look at the state of the pandemic in Indonesia, especially in big cities. In fact, during this pandemic and social restrictions, people in Indonesia became active in sports. Cycling and hiking are becoming a trend (15). Until the time this research was written, there are no data regarding the increase in the community’s sports activities. But every day people can clearly see this phenomenon. From the students’ circles through this research, we can see that this is related to the perception of the benefits of exercise.

**CONCLUSION**

Based on the results of data analysis, it can be concluded that there is a significant relationship between the level of physical activity and the perceived benefits of exercising by Indonesian Education university students in the era of the corona virus pandemic in Indonesia. This shows a rationalization for continuing to provide counselling about the benefits of exercise, especially during the corona virus pandemic.

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