INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS

ISSN(print): 2643-9840, ISSN(online): 2643-9875

Volume 06 Issue 08 August 2023

DOI: 10.47191/ijmra/v6-i8-08, Impact Factor: 7.022

Page No. 3467-3472

# The Impact of Physical Activity and Psychologycal Health of Indonesian Education University Students during Covid-19 Pandemic

**Dikdik Najmu Ramadan[1], Bernadeta Suhartini[2], Nur Indri Rahayu[3], Ali Munir[4]**

[1,2,4] Department of Sports and Health Sciences, Yogyakarta State University, Indonesia

[3] Departement of Physical Education and Health, Education Indonesia Yuniversity, Indonesia

**ABSTRACT:** The purpose of this study was to examine differences in levels of physical activity and psychological health based on the gender of UPI students during the Covid-19 pandemic. The method used Is quantitative with research design comparative causation. The population in this study was active students at the Indonesian University of Education. The sample in this study amounted to 345 people who were taken using the technique cluster random sampling. The instrument used in this study was the GPAQ (Global Physical Activity Questionnaire) to measure the level of physical activity and PGWBI (Psychological Well Being Index) to measure psychological health. The research was conducted online by distributing questionnaires on the Google form and then spreading them on social media. The research analyzed using Mann Whitney u and independent sample t test. The statistical test results show that the data shows a sig value for the physical activity variable of 0.000 <0.0, meaning that there is a significant difference regarding physical activity based on the gender of Indonesian University of Education students during the Covid-19 pandemic. With an average value of 203.76 for men and 151.22 for women, the level of physical activity for men is better than for women, and the sig value for the psychological health variable is 0.000 <0.05, meaning that there is a significant difference significant regarding psychological health variables based on the gender of Indonesian University of Education students during the Covid-19 pandemic. With an average score of 72 for men and an average score of 65 for women, the psychological health level of men is better than women.

**KEYWORDS:** Physical Activity, Psychological Health, GPAQ, PGWBI, Psychology.

## I. INTRODUCTION

Physical activity is any activity that uses body movement and can increase the pulse and respiration (Australian Government Department of Health 2013), physical activity can be said to be one of the most important aspects of health and fitness from child to adult (Kim et al. 2010). Physical activity has many benefits both physically and mentally, including increasing the work of the heart so that its pumping ability can minimize cardiovascular disease, and avoiding atherosclerosis by lowering blood lipid levels (Busing and West 2016). Several studies have also shown that physical activity is successful in restoring psychological health and happiness, and has the potential to counteract symptoms of mental health disorders such as depression and anxiety (Romero-Blanco et al. 2020). Physical activity has many benefits both physically and mentally, including increasing the work of the heart so that its pumping ability can minimize cardiovascular disease, and avoiding atherosclerosis by lowering blood lipid levels (Busing and West 2016). Several studies have also shown that physical activity is successful in restoring psychological health and happiness, and has the potential to counteract symptoms of mental health disorders such as depression and anxiety (Romeo et al. 2010). Unhealthy behaviour, especially physical activity, is a factor causing health problems in adolescents and adults, including physical activity related to cardiovascular disease, mild to moderate depression, and decreased anxiety. Has an impact on lower levels of anxiety and depression (Bowe et al. 2019).

At the end of December 2019, a case of an unknown infectious disease occurred in Wuhan, the largest metropolitan area in China's Hubei province. This disease is caused by a new virus called coronavirus with severe respiratory symptoms. Therefore, China is responsible for the coronavirus disease 2019 (COVID-19) as announced by the World Health Organization (WHO) on 11 February 2020 (World Health Organization 2021). Coronavirus is a group of viruses capable of infecting the respiratory tract. In most cases, this virus will only cause lower respiratory infections, such as the flu. However, this virus can also cause severe respiratory infections, such as lung infections (pneumonia). The impact of the epidemic has made it difficult to carry out

activities, due to social restrictions and closed access to sports activities. Therefore, there is concern about the lack of access to regular exercise or exercise routines during a pandemic which results in weakened immunity and physical fitness, by starting or exacerbating existing problems with their health (Maugeri et al. 2020).

Mental disorders can be precipitated or exacerbated by the pandemic, including mood disorders, anxiety disorders, and post-traumatic stress disorder (Locke et al. 2015). Post-traumatic stress can be triggered by pandemic-related stressors such as widespread exposure to death, including the death of a loved one. Although there is little data on post traumatic stress events from pandemic influenza, reports indicate that some survivors have recurrent, vivid, and detailed memories of the causes of pandemic-related stress, indicating symptoms re-experiencing post-traumatic stressors (Taylor 2019). The results showed that isolation had caused a significant reduction in energy expenditure and physical activity in all age groups, especially men. This has a negative impact on psychological health (Maugeri et al. 2020). The research was also carried out by the Indonesian Association of Psychiatric Doctors, and the result was that 64.3 percent of 1,522 respondents had psychological problems of anxiety or depression after conducting self-checks via online regarding mental health due to the impact of the COVID-19 pandemic. Of the 1,522 respondents, the majority were women, 76.1 percent, with a minimum age of 14 years and a maximum of 71 years (Ulfa, Mikdar, and Raya 2020).

The pandemic also had an impact on students including changes in learning behaviour, social behaviour, and health behaviour. Learning behaviour is adapted to using technology, because lectures are conducted online, but there are signal limitations in technology, which are not suitable for actual learning (Ali et al. 2021). The influence of social behaviour in the form of overprotective behaviour tends to be suspicious when other people are in poor health. Changing healthy behaviour in the form of reducing diet and exercise habits (Ulfa et al. 2020).Based on the problems regarding the lack of physical activity and the declining psychological health of students during the Covid-19 pandemic, it is therefore necessary to have solutions to these problems so that physical health and psychological health are maintained. Many studies have illustrated that exercise / physical activity can counteract long-term metabolic disorders, bone, muscle, joint pathology, and neurodegenerative diseases. Physical activity can also improve health, which works on the heart, blood circulation and respiratory function as well as immunity(Maugeri et al. 2020). Many studies also state that physical exercise can efficiently improve mental health and well-being, and can reduce impaired mental health, for example feeling depressed and anxious (Romeo et al. 2010).

## II. MATERIAL AND METHODS

The design in this study uses a comparative causal design, namely the basis involves two or more different groups in several interesting variables and compares them with other variables or variables. The sample in this study was determined to use the Cluster Random Sampling, the population in this study was all university students with an Indonesian education consisting of 8 faculties with reference to the Michael and Isaac tables, so the total sample was 345 people.

The instruments in this study are:

1. Global Physical Activity Questionnaire (GPAQ)

The GPAQ was published and developed by WHO which contains 16 questions and aims to measure or determine a person's level of physical activity. The questionnaire used in the study adopted the GPAQ questionnaire, with high reliability test results of Cronbach's Alpha $\alpha$ = 0.67-0.73 and moderate validity r = 0.48, the GPAQ instrument was used because its validity and reliability have been recognized globally in 9 countries in the world. About 50 developing countries now use the GPAQ for physical activity data collection. The GPAQ is a physical activity monitoring instrument suitable for developing countries (Armstrong & Bull, 2006). The results of the GPAQ calculation use the Metabolic Equivalent of Task (MET) unit, which is a unit that measures the ratio of the amount of energy needed by the body during physical activity

2. Psychological Well Being Index (PGWBI)

The PGWBI questionnaire is a measurement tool to determine the level of psychological well-being subjectively. The questionnaire used in the study adopted the PGWBI questionnaire. In more detail, this questionnaire assesses self-representation or emotional state to determine the level of well-being. The PGWBI consists of 22 questions with a score of 0-5 with the highest total score of 110. Some of the aspects in this questionnaire are anxiety, depression, positive well-being, self-control, general health, and vitality. The validity of the PGWBI was evaluated in many studies.

In this study, the data collection technique was carried out online by distributing questionnaires via the Google form and distributing them in several media such as WhatsApp, Instagram, and Twitter.

Data analysis in research serves as a test for research hypothesis answers. Data analysis in this study used SPSS (Statistic Packet for Social Science) version 25. First, the normality test was analyzed usingKolmogorov Smirnov to determine the value of the normal distribution. Because the sample is more than 50 people, the two data homogeneity tests used are the results of the

test levene's Test to test the hypothesis of the same variance, in other words, this test relates to the third category of similarities and differences in data, namely testing the hypothesis using an independent sample t test.

## III. RESULT AND DISCUSSION

### Result

**Table 1. Percentage of Physical Activity Levels**

| MET | Category | Sample | Percentage (%) |
|---|---|---|---|
| >3000 | High | 49 | 15% |
| 600-3000 | Moderate | 74 | 21% |
| 600< | Low | 222 | 64% |
| Mean | | 3226 MET | |

From the data above it can be seen that during the Covid19 pandemic in Indonesia, the physical activity of UPI students was 15% higher, 21% moderate, and 64% lower. This shows that most UPI students rarely do physical exercise during the Covid19 pandemic in Indonesia.

Based on the results of the descriptive analysis, the average MET of UPI students is 3226 MET. In this category the level of physical activity of students is high, because in the GPAQ category if the MET is more than 3000 then it is classified as in the category of high physical activity.

**Table 2. Percentage Level of Psychological Health**

| Value | Category | Sample | Percentage (%) |
|---|---|---|---|
| 73-110 | High | 133 | 38% |
| 61-72 | Moderate | 113 | 32% |
| 0-60 | Low | 99 | 30% |
| Mean | | 68 | |

Based on the data above, it is known that 38% of UPI students' psychological health during the Covid-19 pandemic were high, 32% moderate, and 30% lower. This shows that during the Covid-19 pandemic in Indonesia, most UPI students were in good psychological health.

Based on the results of the percentage descriptive analysis, the average score of UPI students is 68. In this category, the psychological health status of UPI students is moderate, because scores in the PGWBI category are between 61-72 which are included in the moderate psychological health category.

**Table 3. Normality Test**

| Variable | Statistics | df | sig. | Information | Conclusion |
|---|---|---|---|---|---|
| GPAQ | 0.319 | 345 | 0.000 | Ho rejected | Abnormal |
| PGWBI | 0.048 | 345 | 0.052 | Ho accepted | Normal |

Based on the table above, it is known that the normality test results of the data are used Kolmogorov-Smirnov it was found that the physical activity of UPI students was not normally distributed because the significance value was 0.000 where the value was less than 0.05. Because the data is not normally distributed, it can be concluded that the data analysis uses a non-parametric test.

Based on the table above, it is known that the normality test results of the data are used Kolmogorov-Smirnov it was found that the psychological health of UPI students was normally distributed because the significance value was 0.052 where the value was more than 0.05. Because the data is normally distributed, it can be concluded that the data analysis uses a parametric test.

**Table 4. Homogenity Test**

| No | Variable | Levene Statistik | Df 1 | Df 2 | sig. |
|---|---|---|---|---|---|
| 1 | Physical Activity | 4.566 | 1 | 343 | 0.033 |
| 2 | Psychological Health | 0.021 | 1 | 342 | 0.885 |

From the results of Levine's statistics for a physical activity value of 4.566 with a Sig. 0.14 is less than 0.05, the data comes from populations that have unequal variances, meaning that the data in this study are not homogeneous.

Based on Levine statistics, the value for psychological health is 0.21 with Sig. 0.885 is greater than 0.05, the data comes from populations that have the same variance, meaning that the research data is homogeneous.

**Table 5. Mann-Whitney U Test (Physical Activity)**

| Group | N | Mean | Std.Deviasi | Sig. |
|---|---|---|---|---|
| Men | 143 | 203,76 | 29.138 | 0.000 |
| Women | 202 | 151,22 | 30.547 | |

Based on the statistical test results in the table above, the data shows a sig value for the physical activity variable of 0.000 <0.05, meaning that there is a significant difference regarding the physical activity variable based on the gender of Indonesian University of Education students during the Covid-19 pandemic. With an average score of 203.76 for men and 151.22 for women, the level of physical activity of men is better than women.

**Table 6. Independent Sample T Test (Psychological Health)**

| Group | N | Mean | Std.Deviasi | Sig. |
|---|---|---|---|---|
| Men | 143 | 72 | 13.947 | 0.000 |
| Women | 202 | 65 | 15.052 | |

Based on the statistical test results in the table above, the data shows a sig value for the psychological health variable of 0.000 <0.05, meaning that there is a significant difference regarding the psychological health variable based on the gender of Indonesian University of Education students during the Covid-19 pandemic. With an average score of 72 for men and an average score of 65 for women, the psychological health level of men is better than that of women.

**DISCUSSION**

Based on the results of the data that has been analyzed, then we discuss the results of the study which aims to determine differences in levels of physical activity and psychological health of Indonesian University of Education students based on gender during the Covid-19 pandemic. The results of the data processing of this study indicate that there are significant differences in the level of physical activity between male and female students at the Indonesian University of Education, where male physical activity is greater than female. This is in accordance with research in Italy that the level of physical activity for men is higher than for women (Maugeri et al. 2020). Previous research also revealed that physical activity or exercise is more often done by men than women (Stockwell et al. 2021). This can happen because of differences in motivation between men and women to do sports (Kilpatrick, Hebert, and Bartholomew 2005). Although both men and women enjoy playing sports, such as volleyball, more men than women enjoy passionate and competitive team sports, there are also differences between men and women. For example, the problem of losing weight is an important motive for active exercise among women. Excess body weight is significantly correlated among women (Romero-Blanco et al. 2020). The level of physical activity in each gender will of course be different. Confidence (self-efficacy) The perceived and benefits of physical activity in women are significantly lower than in men. For men, statistically, the physical activity carried out is good and according to recommendations. However, for women, the benefits and barriers as well as self-confidence significantly explain their participation in physical activity which is very low and not according to what has been recommended (Kim et al. 2010).

Differences in physical activity patterns of time and intensity were also considered. More men participate in strenuous sports and team sports and more men than women take part in sports competitions. On the other hand, women are more involved in recreational activities only, activities that are less vibrant. Also, more women than men spend time on everyday tasks combined with physical activity, such as walking or cycling to work. Similar differences in physical activity patterns between adult men and women have been found in other studies and may therefore reflect the effects of gender differences. Research has found that the relationship between physical inactivity and psychological well-being is greater in the female group. Previous results have examined gender differences between measures of physical fitness and life satisfaction, which are one of the central constructs in the field of positive psychology, and most do not reflect differences regarding sex and life satisfaction. This evidence shows

that the lack of physical activity levels can largely affect the mental well-being of women (Busing and West 2016; Maugeri et al. 2020).

Understanding the different risks of inactivity for men and women will facilitate the promotion of physical activity habits in the future. This can be done by providing information about the health effects of physical activity, by stimulating participation in activities that are easily accessible, and by providing childcare facilities at a number of sporting activities venues (Maugeri et al. 2020).

Judging from the results of the PGWBI questionnaire data processing, it shows that the instrument is suitable for measuring stress and fatigue, as well as measuring the impact of interventions on well-being and quality of life (Lundgren-Nilsson et al. 2013). The results of his research showed that there were significant differences in psychological health between male and female students at the Indonesian University of Education, where the male score was greater than the female. This is also exactly the same as a university study in Hungary that men's psychological health is better than women's (Lukács 2021). Psychological health can be influenced by several factors, in addition to physical activity that affects psychological health including parents having positive traits, a conducive environment, healthy and good mental health of parents, one's social support can also be one of the factors that affect one's mental health (Hertwig et al. 2004).

Factors for mental health disorders in men are difficult to know because men tend not to ask for help and tend to vent by drinking alcohol and consuming illegal drugs, while women tend to vent by showing emotional expression (Blair, Siddiqi, and Frank 2018). The design of the male brain is devoid of feelings, but this does not mean that men are devoid of empathy. According to research, when someone expresses their feelings, empathy for men will appear. The fact is that men have more emotional reactions than women, but when men become aware of their feelings, men choose not to behave because of social stereotypes. Men prefer to keep things cool and look cool. Similarly, women seem to have a stereotype that it must be men to actively promote interpersonal relationships. Women tend to be more sensitive than men, but this doesn't mean that women can't actively promote a relationship. In general, men can make decisions without being influenced by emotions, whereas most women usually consider other factors related to emotions, which are usually ignored by men. In essence, women prioritize feelings, while men prioritize logic in thinking (Callow et al. 2020).

## IV. CONCLUSION

There are differences in the level of physical activity in male and female students during the Covid-19 Pandemic. There were differences in the psychological health of male and female students during the Covid-19 Pandemic. The results of this study can be used as evaluation material for future research. In addition, it can also be used as a reference for further research. The results of this study can be useful for readers, especially when discussing physical activity and mental health. In this study, it is far from perfect, and different samples need to be developed and studied further with the participation of the various parties concerned. And more journal references and more varied.

## REFERENCES

1) Ali, Ajmol, Claire Mclachlan, Owen Mugridge, Tara Mclaughlin, Cathryn Conlon, and Linda Clarke. 2021. “The Effect of a 10-Week Physical Activity Programme on Fundamental Movement Skills in 3 – 4-Year-Old Children within Early Childhood Education Centres.”
2) Australian Government Department of Health. 2013. “Australia’s Physical Activity and Sedentary Behaviour Guidelines for Young People (18-65 Years).” 8.
3) Blair, Alexandra, Arjumand Siddiqi, and John Frank. 2018. “Canadian Report Card on Health Equity across the Life-Course: Analysis of Time Trends and Cross-National Comparisons with the United Kingdom.” *SSM - Population Health* 6(September):158–68. doi: 10.1016/j.ssmph.2018.09.009.
4) Bowe, Andrea K., Miriam Owens, Mary B. Codd, Brian A. Lawlor, and Ronan W. Glynn. 2019. “Physical Activity and Mental Health in an Irish Population.” *Irish Journal of Medical Science* 188(2):625–31. doi: 10.1007/s11845-018-1863-5.
5) Busing, Kyle, and Carrie West. 2016. “Determining the Relationship Between Physical Fitness, Gender, and Life Satisfaction.” *SAGE Open* 6(4). doi: 10.1177/2158244016669974.
6) Callow, Daniel D., Naomi A. Arnold-nedimala, Leslie S. Jordan, Gabriel S. Pena, Junyeon Won, John L. Woodard, D. Ph, J. Carson Smith, and D. Ph. 2020. “The Mental Health Benefits of Physical Activity in Older Adults Survive the COVID-19 Pandemic.” 10(October):1046–57. doi: 10.1016/j.jagp.2020.06.024.
7) Hertwig, Ralph, Greg Barron, Elke U. Weber, and Ido Erev. 2004. “Is Reading about the Kettle the Same as Touching It? Decisions from Experience and the Effects of Rare Events in Risky Choice.” *Psychological Science* 15(8):534–39.

8) Kilpatrick, Marcus, Edward Hebert, and John Bartholomew. 2005. "College Students' Motivation for Physical Activity: Differentiating Men's and Women's Motives for Sport Participation and Exercise." *Journal of American College Health* 54(2):87–94. doi: 10.3200/JACH.54.2.87-94.
9) Kim, Hyun Kyung, Mi Ja Kim, Chang Gi Park, and Hyeon Ok Kim. 2010. "Gender Differences in Physical Activity and Its Determinants in Rural Adults in Korea." 876–83. doi: 10.1111/j.1365-2702.2009.03054.x.
10) Locke, A. M. Y. B., Nell Kirst, Cameron G. Shultz, Michigan Medical, and Ann Arbor. 2015. "Diagnosis and Management of Generalized Anxiety Disorder and Panic Disorder in Adults."
11) Lukács, Andrea. 2021. "The Impact of Physical Activity on Psychological Well-Being and Perceived Health Status during Coronavirus Pandemic in University Students." *Journal of King Saud University - Science* 33(6). doi: 10.1016/j.jksus.2021.101531.
12) Lundgren-Nilsson, Åsa, Ingibjörg H. Jonsdottir, Gunnar Ahlborg, and Alan Tennant. 2013. "Construct Validity of the Psychological General Well Being Index (PGWBI) in a Sample of Patients Undergoing Treatment for Stress-Related Exhaustion: A Rasch Analysis." *Health and Quality of Life Outcomes* 11:1–9. doi: 10.1186/1477-7525-11-2.
13) Maugeri, Grazia, Paola Castrogiovanni, Giuseppe Battaglia, Roberto Pippi, Velia D'Agata, Antonio Palma, Michelino Di Rosa, and Giuseppe Musumeci. 2020. "The Impact of Physical Activity on Psychological Health during Covid-19 Pandemic in Italy." *Heliyon* 6(6):e04315. doi: 10.1016/j.heliyon.2020.e04315.
14) Romeo, J., J. Wärnberg, T. Pozo, and A. Marcos. 2010. "Physical Activity, Immunity and Infection." *Proceedings of the Nutrition Society* 69(3):390–99. doi: 10.1017/S0029665110001795.
15) Romero-Blanco, Cristina, Julián Rodríguez-Almagro, María Dolores Onieva-Zafra, María Laura Parra-Fernández, María Del Carmen Prado-Laguna, and Antonio Hernández-Martínez. 2020. "Physical Activity and Sedentary Lifestyle in University Students: Changes during Confinement Due to the Covid-19 Pandemic." *International Journal of Environmental Research and Public Health* 17(18):1–13. doi: 10.3390/ijerph17186567.
16) Stockwell, Stephanie, Mike Trott, Mark Tully, Jae Shin, Yvonne Barnett, Laurie Butler, Daragh McDermott, Felipe Schuch, and Lee Smith. 2021. "Changes in Physical Activity and Sedentary Behaviours from before to during the COVID-19 Pandemic Lockdown: A Systematic Review." *BMJ Open Sport and Exercise Medicine* 7(1):1–8. doi: 10.1136/bmjsem-2020-000960.
17) Taylor, Steven. 2019. *The Psychology Of Pandemic*.
18) Ulfa, Zuly Daima, Ujen Zenal Mikdar, and Universitas Palangka Raya. 2020. "Dampak Pandemi Covid-19 Terhadap Perilaku Belajar , Interaksi Sosial Dan Kesehatan Bagi Mahasiswa FKIP Universitas Palangka Raya." 5:124–38.
19) World Health Organization. 2021. "World Health Organization. Coronavirus Disease 2019 (COVID-19)." *Situation Report, 32.* 2020(September).