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# Influence of Intensity of Smartphone Use with Physical Fitness of Students during the Covid-19 Pandemic

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## Abstract

*This study aims to determine the relationship between the intensity of smartphone use and physical fitness. This type of research is descriptive quantitative, with an ex post facto approach. The population in this study were students of class VIII SMP Negeri 4 Purwokerto, Banyumas Regency, totaling 212 students. Determination of the sample size in this study using the Slovin formula with a sampling error of 10% totaling 68 students. Instruments to measure physical fitness are TKJI tests aged 13-15 years and the intensity of smartphone use is measured using a questionnaire. The data analysis technique used SPSS 2020. The results showed that there was a significant relationship between the intensity of smartphone use and physical fitness, with a calculated r value of -0.619.*

Keywords
smartphone use intensity; sleep quality; physical fitness

## I. Introduction

Currently the Corona Virus Disease (Covid-19) pandemic has had a major impact on changes in human life. Indonesia has established policies that have been implemented, such as in the economic sector, in the health sector and in the education sector. The process of learning from home makes children interact more often with gadgets because learning is done online(Herlina & Suherman, 2020). The increasing intensity of gadget use is feared to increase the number of gadget addiction(Sari & Sutapa, 2020). Based on a survey by The Asian Parent Insight conducted in five countries including Indonesia, involving children who use gadgets, the results of the study show that 98% of children who use gadgets include 67% using gadgets belonging to their parents, 18% gadgets belonging to relatives or friends. family and 14% own(Iuliano et al., 2021; Rayner & Webb, 2021; Danchikov et al., 2021). This means that it can be concluded that the survey results also reveal that most of the respondents have a Smartphone type gadget in which various applications can be connected and can be connected to an internet connection.

Because learning is done online, more and more students have free time at home, but this free time is only used to sit and then play with smartphones all day, which also makes children less active. (Escamilla et al., 2021). As a result, over time the child's physical fitness will decrease, so that his body growth is not optimal and the child is at risk of obesity(Mendrofa, 2021). Children when playing smartphones, unconsciously sitting bent or lying down(Jauhari et al., 2020). This sitting position is not a healthy sitting position, on average, children who sit in the wrong position for too long can make their muscles feel stiff and joint pain.(Alfarisyi & Mahardika, 2021). Therefore, the impact of reduced physical activity will certainly result in weak physical condition abilities or physical fitness, the actual

level of a person's physical fitness will affect physical and mental readiness to be able to accept the workload.

Based on the results of interviews with students at SMP Negeri 4 Purwokerto, Banyumas Regency with details of 9 men and 6 women. Based on the results of the previous study, the researchers found that all of the students surveyed owned and used smartphones. The results of the study found that 9 students were excessive smartphone users with an average usage of 38 hours/day, 5 students were moderate users with an average usage of 23 hours/day and the rest were light users with an intensity of use of less than 1 hour per day. 10 students stated that using a smartphone before going to bed and forgetting the time.

From the results of interviews with PJOK teachers that students play online games via cellphones for at least 1 hour every day. Types of games that are often played for example PUBG and Mobile Legend. Games that are done for a long time without being balanced with good physical activity will have a bad impact on children's physical and psychological health(Sya'diyah et al., 2021; Yusnira & Lestari, 2021). To get around so that children do not only like electronic games that are only able to fulfill the child's psychological aspects, it is necessary to form an alternative so that children also have a passion and interest in sports.(Saraswati et al., 2021). Based on researchPutri et al., (2021) in class VIII SMP Negeri Betung District Banyuasin Regency showed that as many as 25 subjects who carried out physical fitness tests for Indonesian children 4% or 1 student was stated to have a fitness level in the category of less than once, 56% or 14 students were stated to have a level of fitness in the category of less, 40% or 10 students are stated to have a moderate level of fitness, meaning that in this study the average student has fitness in the medium category.

Physical fitness is defined as the ability of a person's body to perform daily work tasks without causing significant fatigue (van Baak et al., 2021). Learners are members of the community who are trying to develop their potential through a learning process that is available at certain paths, levels, and types of education (Navarrete et al., 2021). Every intervention to improve physical fitness, it is necessary to pay attention to the child's developmental factors (Filgueira et al., 2021). At the age of 13-15 years, students begin to deal with body management skills and basic skills such as moving skills, static movement in place and movement using limbs.(Fühner et al., 2021). Therefore, if students are more interested in smartphones, their physical fitness is not good, which results in students being lazy and preferring to just sit and lie down.

Research result Torous et al., (2021) shows that excessive use of mobile phones can affect the quality of health and social attitudes of the community. The regression analysis shows that there is a significant correlation between smartphone use and social attitudes and healthy living behavior. In line with researchSafruddin et al., (2021)on the other hand there are still people who are reluctant to do sports, even spend their time playing smartphones or other activities that require less physical activity. The smartphone phenomenon has now become a lifestyle, which can unwittingly affect social attitudes and healthy living behavior (Nivette et al., 2021). Research result Herrero et al., (2021)which focuses on the younger generation about the activity level of smartphone use, the study concluded that students with high intensity smartphone use had high smartphone addiction scores. Therefore, in this study, problems that will be discussed and need to be limited to whether there is an influence between the intensity of smartphone use on the physical fitness of students, because this research is very important and has never been studied scientifically, the authors are interested in conducting this research.

## II. Research Methods

This research is a correlational study. The ex post facto method used in this research is a survey method, while the technique and data collection uses a questionnaire and motor ability test. The research location is SMP Negeri 4 Purwokerto, Banyumas Regency, the population in this study is class VIII students at SMP Negeri 4 Purwokerto, Banyumas Regency, totaling 212 students. 68 samples were determined using the Slovin formula with a sampling error of 10%. The instrument in this study using TKJI adopted from research (Aprialdi et al., 2021) In order to measure the physical fitness of vulnerable ages 13-15 years, the validity of the test for men is 0.884 and for women the validity is 0.897 and a closed questionnaire is used to measure the Intensity of Smartphone Use. This closed questionnaire adopts from research (Hambali, 2021). After the analysis showed that of the 15 items, all items were valid with a value of 0.967, which means that the questionnaire is valid and reliable. This questionnaire contains the factors of intensity of smartphone use.

**Table 1.** Instrument Grid

| Variable | Factor | Indicator |
|---|---|---|
| Smartphone Usage Intensity | Frequency | I often listen to my favorite music using my smartphone |
| | | When I feel bored, I play games on my smartphone |
| | | Every time I look at my smartphone to check notifications |
| | | I rarely use my smartphone when I'm in my room |
| | Duration | I spend more than 30 minutes playing games using a learning smartphone |
| | | I spend more of my free time accessing the internet via smartphone |
| | | I need quite a long time to access the application via smartphone |
| | | At least I use my smartphone more than 30 minutes before going to bed |

The data collection process was carried out on 17-20 October 2021 by distributing closed questionnaires through a google form which was distributed to students at SMP VIII SMP Negeri 4 Purwokerto, Banyumas Regency, then after the students filled out a closed questionnaire, they continued with the TKJI test. After the data was collected, it was analyzed using SPSS 2020.

## III. Discussion

**Table 2.** Descriptive Statistics of Smartphone Use Intensity

| No | interval | Category | Frequency | Percentage |
|---|---|---|---|---|
| 1 | 49.18 < X | Very high | 3 | 4.41% |
| 2 | 42.70 < X 49.18 | Tall | 20 | 29.41% |
| 3 | 36.22 < X 42.70 | Enough | 31 | 45.59% |
| 4 | 29.74 < X 36.22 | Low | 6 | 8.82% |
| 5 | X 29.74 | Very low | 8 | 11.76% |
| Amount | | | 68 | 100% |

Based on the table shows that the intensity of smartphone use of class VIII students at SMP Negeri 4 Purwokerto, Banyumas Regency during the COVID-19 pandemic in 2021 is in the "very low" category of 11.76% (8 students), "low" 8.82 % (6 students), "enough" 45.59% (31 students), "high" 29.41% (20 students), and "very high" 4.41% (3 students).

**Table 3.** Frequency Distribution of Physical Fitness

| No | interval | Fitness Category | Frequency | Percentage |
|---|---|---|---|---|
| 1 | 22-25 | Very well | 0 | 0.00% |
| 2 | 18-21 | Good | 2 | 2.94% |
| 3 | 14-17 | Currently | 30 | 44.12% |
| 4 | 10-13 | Not enough | 35 | 51.47% |
| 5 | 5-9 | Less once | 1 | 1.47% |
| Amount | | | 68 | 100% |

Based on the table, it shows that the physical fitness of class VIII students at SMP Negeri 4 Purwokerto, Banyumas Regency during the Covid-19 pandemic in 2021 is in the "very less" category of 1.47% (1 student), "less" of 51.47 % (35 students), "moderate" at 44.12% (30 students), "good" at 2,94% (2 students), and "very good" at 0.00% (0 students).

**Table 4.** Summary of Normality Test Results

| Variable | *p* | *Sig.* | Description |
|---|---|---|---|
| Intensity of smartphone use | 0.108 | 0.05 | Normal |
| Physical fitness | 0.138 | 0.05 | Normal |

The table shows that the significance value (p) of the variable intensity of smartphone use, sleep quality, and physical fitness is > 0.05, so the data is normally distributed. Full results can be seen in appendix 8 on page 100.

**Table 5.** Summary of Linearity Test Results

| Connection | *p* | *Sig.* | Description |
|---|---|---|---|
| Intensity of smartphone use with physical fitness | 0.966 | 0.05 | linear |

From the table it can be seen that the significance value (p) > 0.05. So, the relationship between the independent variable and the dependent variable is linear. Full results can be seen in appendix 9 on page 101.

**Table 6.** Hypothesis Analysis Results

| Connection | r count | r table (df) | sig | Description |
|---|---|---|---|---|
| Intensity of smartphone use with physical fitness | -0.619 | 0.237 | 0.000 | Significant |

Based on the table, it shows that the correlation coefficient of the intensity of smartphone use has an r value of -0.619 and a significance value (sig) of 0.000. Because the calculated r value is -0.619 > r table 0.237 and the significance value is 0.000 < 0.05, then H0 is rejected, meaning Ha1 which reads "There is a significant relationship between the intensity of smartphone use and the physical fitness of class VIII students at SMP Negeri 4 Purwokerto, Banyumas Regency during the COVID-19 pandemic in 2021" was accepted.

Based on the results of the study, it shows that there is a significant relationship between the intensity of smartphone use and the physical fitness of class VIII students at SMP Negeri 2 Purwokerto, Banyumas Regency during the COVID-19 pandemic in 2021. These results are in accordance with research (Efendi & Widodo, 2021)that there is a significant relationship between smartphone use and the level of physical fitness of students of SMPN 1 Jombang aged 13-15 years. In line with research(Hidayati & Oktafianti, 2021) Regarding the effect of smartphone use on physical fitness, it was found that from the total research sample, about two-thirds of the male research sample and three-quarters of the female research sample did not get physical activity outside school hours every day which caused dependence on smartphones.

The higher the intensity of smartphone use, it will reduce other activities, especially physical activity (Abbasi et al., 2021) (Ye & Ma, 2021). Before smartphones were widely circulated in society, children were more likely to play traditional games that could increase their physical activity so that they could burn calories in the body(Muhlisin, 2021). Mu'rifah in Hasibuan et al (2019) stated about personal health, namely that someone will try to maintain andincrease their own level of health in order to achieve peace of life and have the best workforce. Exercise is a form of physical stressor, therefore exercise that does not heed the basic principles of exercise will have the potential to cause health problems (Jafaruddin, 2021). Physical activity here is an activity that is often done by children such as exercising in the afternoon such as soccer, gobagsodor, playing marbles and hide and seek is also an activity to burn calories that are fun so that children

are not bored and continue to do activities so that they automatically make children feel sleepy at night because they are tired so they don't make children stay up late.

Supported by several studies from research (Bolan et al., 2021; Busch & McCarthy, 2021; Chopdar et al., 2021; Fan et al., 2021; Gowthami & Kumar, 2016)stated that excessive use of cell phones/smartphones is more prone to causing health problems, such as headaches, fatigue, impaired concentration, hearing problems, and difficulty sleeping. This means that the use of smartphones at bedtime can cause uncomfortable disturbances, one of which affects sleep quality for the worse, sleep efficiency decreases, here it can cause children to become dependent on the smartphone so that before going to bed they often delay sleep, which can suppress the release of the hormone melatonin which stimulates sleep.

Unlike now, on average, students have smartphones and often use gadgets, even if they don't hold a smartphone, it feels like something is missing, in line with other impact research on using gadgets is that students rely on gadgets more often than having to study. (Lufthansa et al., 2020). The use of gadgets has positive and negative impacts(Nurseto & Saryono, 2020; Hidayati & Oktafianti, 2021). Based on the description above, the use of gadgets will have a negative or positive impact on student learning outcomes, so there needs to be good control over the use of students' gadgets.

However, with the development of the times, it is undeniable that the use of smartphones is very important in addition to during the COVID-19 pandemic which demands online learning (Tsauri et al., 2021). Based on opinion(Saraswati et al., 2021; Gaffar et al., 2021)that the intensity of smartphone use is the level of frequency / habit of a person accessing the internet every day by carrying out activities such as communicating, facilitating a job, finding information, and doing other activities with other people using a smartphone as an intermediary, which means frequency is the number of smartphone usage within a certain period of time can not be determined. The positive impacts of using smartphones include: making it easier for someone to access the internet, making it easier for someone to communicate with other people, making it easier for students to get information about learning materials, making it easier for students to do assignments and find study materials,(Gowthami & Kumar, 2016; Fan et al., 2021). This study proves that actually using a smartphone if it is controlled properly and under proper parental supervision is very beneficial, but due to the lack of supervision from parents, this is where the problem makes children dependent on smartphones.

This research was carried out as well as possible, but it is inseparable from the existing limitations, namely the respondents in filling out the questionnaire and the TKJI test were not monitored whether when carrying it out seriously or not, did not check with the parents/people closest to the respondent, when doing the TKJI test. Researchers did not pay attention to the food consumed.

## IV. Conclusion

It can be concluded that the impact of students who cannot control the use of smartphones for too long can lead to poor mental conditions, lazy, unruly, and decreased physical fitness. This means that the longer the smartphone plays, the lower the level of physical fitness. Therefore, the role of the teacher is very much needed in a pandemic condition like now. It is better if the teacher provides direction or socialization to parents so that they always remind that using a smartphone is good in addition to making it easier to communicate and can be used as a learning medium, but excessive use can reduce physical fitness.

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