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THE INFLUENCE OF PEER EDUCATIONS ON INCREASING THE PHYSICAL ACTIVITY OF NURSING STUDENT IN GREATER BANDUNG IN THE COVID 19 ERA

Pengaruh Peer Educator terhadap Peningkatan Aktivitas Mahasiswa Keperawatan Sebandung Raya di Era Covid 19

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ABSTRAK

Data WHO pada Maret 2020 terdapat 509.164 orang terkonfirmasi COVID-19 dengan kasus baru sebanyak 46.484 orang. Penyebaran COVID-19 di Indonesia meningkat dari hari ke hari dan meluas ke-27 provinsi di Indonesia, salah satunya provinsi Jawa Barat. Pemerintah berupaya melakukan pembatasan sosial berskala besar (PSBB), sehingga pembelajaran mahasiswa dan anak sekolah dilakukan secara daring. Model pembelajaran ini mengharuskan penggunaan laptop atau handphone dalam jangka waktu lama, sehingga berdampak menurunnya aktivitas fisik. Tahun 2021 angka kejadian COVID 19 sudah menurun dan mahasiswa sebagian besar melaksanakan pembelajaran luring, namun masih banyak mahasiswa yang belum melakukan aktivitas fisik seperti sebelum masa pandemi COVID 19. Teman sebaya dalam upaya peningkatan kesehatan merupakan suatu strategi yang sangat efektif. Pendidikan sebaya yang dilakukan peer educator dapat memotivasi melakukan aktivitas positif, mendidik melalui berbagi informasi dengan teman sebayanya. Tujuan penelitian ini adalah untuk mengetahui pengaruh pendidikan kesehatan sebaya terhadap aktivitas fisik pada mahasiswa. Metode penelitian yang digunakan adalah quasy experiment, pretest - posttest control group design dan Nonequivalent control group design. Besar sampel berjumlah 57 responden untuk kelompok intervensi dan 57 responden untuk kelompok kontrol. Teknik pengambilan sampel dengan cara purposive sampling. Intervensi diberikan dalam 6 kali pertemuan. Kegiatan intervensi yang diberikan kepada sampel yaitu mahasiswa keperawatan meliputi: pemberian materi tentang COVID-19, aktivitas fisik dengan media buku panduan, melakukan aktivitas fisik di era COVID-19 dengan media video. Hasil penelitian menunjukkan terdapat pengaruh peer educator terhadap peningkatkan aktivitas fisik di era COVID-19 karena didapatkan p value 0,000 sehingga peer educator tepat diterapkan untuk memberikan pengaruh positif kepada remaja.

***Kata kunci**: aktivitas fisik, COVID-19, mahasiswa, peer education*

ABSTRACT

The WHO data on March 2020, showed that there were 509,164 confirmed cases of COVID-19, with 46,484 new cases. The spread of COVID-19 in Indonesia is increasing day by day and has reached all 27 provinces, including West Java province. The government is implementing large-scale social restrictions (PSBB), leading to online learning for students and school children. This learning model requires the use of a laptop or cellphone for extended periods, resulting in reduced physical activity. In 2021, the incidence of COVID-19 decreased, and most students resumed offline learning. However, many students still did not engage in physical activities as they did before the COVID-19 pandemic. To address this, peer education has been identified as a highly effective strategy. Peer educators can motivate students to engage in positive activities and educate them by sharing information with their peers. This research aimed to determine the effect of peer health education on physical activity in students. The research methods used were quasi-experimental, employing a pretest-posttest control

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group design and a nonequivalent control group design. The sample size was 57 respondents for the intervention group and 57 respondents for the control group, selected through purposive sampling. The intervention activities provided to the sample were nursing students, including providing material about COVID-19, using the guidebook for physical activity, and engaging in physical activities in the COVID-19 era using video media. The research results showed that peer educators had a significant influence on increasing physical activity in the COVID-19 era, as the p-value was 0.000, so that peer educators are appropriate to be implemented to provide a positive influence on teenagers.

Keywords: COVID-19, college student, peer education, physical activities

INTRODUCTION

In early 2020, the world was faced with an extraordinary event in the form of the outbreak of a new infectious disease known as Coronavirus Disease 2019 (COVID-19). The World Health Organization (WHO) officially declared it a global pandemic on March 11, 2020.[1]In Indonesia, the first cases of COVID-19 were recorded in March 2020. This disease is caused by a coronavirus that attacks the respiratory tract and can cause mild symptoms such as coughs and colds to severe symptoms such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).[1]

Based on data from the World Health Organization (WHO) as of March 27, 2020, the number of positive COVID-19 cases globally has reached 509,164 people, with 46,484 new cases. In Indonesia, there were 893 confirmed cases and 103 new cases recorded at the same time. The spread of COVID-19 has increased significantly, including in West Java Province. Data from the West Java COVID-19 Information and Coordination Center (PIKOBAR) shows that there are 98 positive cases, 14 deaths, and 5 patients recovered. The number of Patients Under Surveillance (PDP) reached 644 people and People Under Monitoring (ODP) reached 4,729 people.[2]

The surge in COVID-19 cases has had a significant impact on various sectors of life, including politics, economics, social life, culture, security, public welfare, and education. In response, the Indonesian government implemented a Large-Scale Social Restrictions (PSBB) policy, which includes restrictions on religious and socio-cultural activities, the use of public facilities, modes of transportation, and learning and work activities.[3]As part of this policy, the Ministry of Education and Culture issued a circular regulating the implementation of Distance Learning (PJJ) or online learning, which aims to minimize the spread of the virus.[4]

Online learning is carried out by utilizing digital technology through various platforms and media, which applies to all learners, including university students.[5] This situation encourages students to use digital devices like laptops and cell phones for extended periods of time. Rosenfield's research suggests that staring at a screen for more than four hours per day can trigger symptoms of eye strain.[6] Prolonged use of digital devices is also known to cause various complaints such as tired eyes, headaches, eye discomfort, neck and shoulder pain, dry eyes, and blurred vision.[7] These symptoms cause physical fatigue, which makes students tend to carry out daily activities in a sitting or lying position, thus reducing the level of physical activity.[8]

Lack of physical activity is not limited to the elderly, but is also found in productive age groups such as adolescents and young adults. According to the 2018 Basic Health Research (Riskesdas) report, the prevalence of physical inactivity among those aged 15–19 reached 49.6%,

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while among those aged 20–24 it was 33.2%. In West Java Province alone, the prevalence of physical inactivity among those aged 10 years and older reached 37.5%.[9] Lack of physical activity is one of the main risk factors for non-communicable diseases (NCDs),[10] which is recorded as contributing to around 1.6 million deaths each year.[11] Minimal physical activity also contributes to a weakened immune system.[12] Before the pandemic, the average person's physical activity was around 540 minutes per week, but this dropped drastically to 105 minutes per week during the pandemic, meaning a reduction of 435 minutes.[13] Among college students, there was a significant increase in the prevalence of physical inactivity, from 21.3% to 65.6%.[14] In one study, it was found that 44.3% of students experienced a decrease in physical activity during the pandemic.

This study aims to determine the effect of peer education on increasing students' physical activity during the COVID-19 pandemic.

METHODS

The research design used in this study was a quasi-experimental with a pretest–posttest control group design approach and a nonequivalent control group model. The statistical test used in this study was the Mann-Whitney Test. The study was conducted at five universities in the Greater Bandung area from January 2022 to December 2023. The total participants consisted of 114 students, with 57 in the intervention group and 57 in the control group. The sample selection technique was purposive sampling, namely selecting respondents based on certain criteria relevant to the research objectives. The inclusion criteria in this study were nursing students in Greater Bandung, willing to be research respondents, respondents did not have diseases that would impact them if they did a lot of physical activity, and were able to fully participate in peer education. The exclusion criteria in this study were respondents with diseases that allow for physical activity and respondents who were not committed and did not attend meetings. The hypothesis in this study is that Peer Education can increase student physical activity during the COVID-19 pandemic.

This study has two variables, namely the independent variable and the dependent variable. The independent variable is peer education, which is defined as a method of delivering information, communication, and education by individuals who are in a relatively similar age group or social status, such as students, college students, colleagues, or professional groups, including the same gender.[15] The peer education intervention was conducted over six sessions, each lasting approximately 60 minutes. The dependent variable was students' physical activity during the COVID-19 pandemic. Physical activity was measured using the International Physical Activity Questionnaire (IPAQ) modified by the researchers. This instrument underwent validity testing with an r-value of 0.3061 and reliability testing with a Cronbach's alpha value of >0.5.

The intervention activities provided to the sample, namely nursing students, included: providing material on COVID-19, physical activity using a guidebook, and engaging in physical activity during the COVID-19 era using video media. The first stage of the study was to conduct an initial assessment of respondents' physical activity using the International Physical Activity Questionnaire (IPAQ) in the intervention and control groups. Furthermore, the control group was not given any treatment, and the intervention group was given peer education treatment by peer educators. This treatment began with Peer educator training in the intervention group. There were 5 intervention groups; each intervention group was

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asked to send 2 students with the following conditions: having leadership qualities in helping others, having good communication skills, being able to listen to others and being able to influence peers, and having more knowledge than their group mates. After being given training, each peer educator from each intervention group conducted peer education in their group 3x/week for two weeks. After two weeks, a final assessment was conducted regarding respondents' physical activity using the International Physical Activity Questionnaire (IPAQ). The Ethics Committee of the Bandung Ministry of Health Polytechnic received an ethics report with ethics number 01/KEPK/EC/V/2023 as proof of the legality of the research.

RESULTS

Based on the initial and final measurement results of the physical activity levels of respondents in the control and intervention groups, the data obtained were then processed and analyzed. The data processing process includes several stages, namely editing, coding, tabulating, entry, and cleaning. Data analysis was carried out to test for differences that occurred. Based on the results of the normality test, it was known that the data were not normally distributed, so the analysis was continued using non-parametric statistical methods. To determine differences in groups between the pretest and posttest, the Wilcoxon Signed Rank Test was used, while to compare differences between the intervention and control groups, the Mann-Whitney U test was used. The hypothesis acceptance criterion was set if the p-value <α, with a significance level of α = 0.05. The entire statistical analysis process was carried out using SPSS software. The results of the univariate and bivariate analyses can be seen in the following table:

Table 1. Frequency Distribution of Respondents Based on Physical Activity Before and After Treatment in the Intervention Group and Control Group

Physical Activity	Intervention Group		Control Group	
	Amount	%	Amount	%
Before Treatment				
Light Activity	28	49.1	32	56.1
Moderate Activity	23	40.4	21	36.8
Heavy Activity	6	10.5	4	7.0
After Treatment				
Light Activity	5	8.8	31	54.4
Moderate Activity	38	66.7	21	36.8
Vigorous Activity	14	24.6	5	8.8

Based on Table 1 above, before treatment or during the initial measurement, many respondents engaged in light activities, namely 49.1% in the intervention group and 56.1% in the control group. However, after peer education treatment by peer educators, many in the intervention group engaged in moderate activities (66.7%) and vigorous activities (24.6%). Meanwhile, in the control group, many remained engaged in light activities at the final measurement (54.4%).

Table 2. Frequency distribution of respondents based on physical activity before and after treatment in the intervention group and control group

Family Health Tasks	Intervention Group			Control Group		
	Mean	Min	Max	Mean	Min	Max
Before Treatment	2190.00	159	20925	3249.96	66	37275
After Treatment	6201.82	193	50475	2807.6		38625
Change/difference	4011.82			442.3		

Based on the results of the respondents' physical activity measurements in MET in the table above, it can be seen that in the initial measurement or before treatment in the intervention group, the average physical activity score carried out was

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2190.00 MET, and in the final measurement after peer education treatment by peer educators, it became 6201.82. This shows an increase of 4011.82 MET. Meanwhile, the initial measurement in the control group, the respondents' physical activity averaged 3249.9 MET, and in the final measurement, the average was 2807.6 MET. This shows a decrease of 442.3 MET.

Before conducting a bivariate analysis, a normality test was carried out to determine the next statistical test.

Table 3. Normality Test based on Physical Activity Before and After Treatment in the Intervention Group and Control Group

Family Health Tasks	Intervention Group		Control Group	
	p-value	Distribution	p-value	Distribution
Before Treatment	0,000	Abnormal	0,000	Abnormal
After Treatment	0,000	Abnormal	0,000	Abnormal

Based on the normality test, the p-value was <0.005, indicating that the data before and after treatment in the intervention and control groups were not normally distributed. To determine the effect of peer educators on increasing physical activity in students in the intervention and control groups, a Wilcoxon signed-rank test was conducted. The results of this test can be seen in the table below:

Table 4
The Influence of Peer Educators on Increasing Physical Activity Before and After Treatment in the Intervention Group and Control Group

	N	Z	*p-value*
Pre-Post Intervention Group	57	-4,167	0.00
Pre-Post Control Group	57	-0.346	0.730

Table 4 above shows the results of the Wilcoxon test in the intervention group. A p-value of 0.000 indicates a significant effect on physical activity after receiving peer education from a peer educator. The statistical analysis of the control group showed a p-value of 0.730, indicating no significant difference in physical activity between the initial and final measurements.

To determine the difference in physical activity before and after treatment in the intervention group and the control group, a Mann-Whitney test was carried out.

Table 5. Differences in Physical Activity Before and After Treatment in the Intervention Group and Control Group

Group	N	*Mean Rank*	*Sum of Ranks*	p-value
Intervention Group	57	66.95	1457.00	0.002
Control Group	57	48.05	490.00	
Total	114			

Table 5 above provides information that, by using the Mann-Whitney statistical test, a p-value of 0.002 was obtained, which is smaller than alpha 0.005; this means that there is a difference in the increase in physical activity in the intervention group and the control group.

DISCUSSION

Physical activity has decreased during the COVID-19 pandemic. Student activity levels are also relatively low, as they are required to stare at computer, smartphone, or laptop screens for extended periods during online learning. This can negatively impact student health and lead to physical and mental fatigue, such as increased anxiety and sedentary behavior.[16] Sedentary behavior is a group of behaviors that occur while sitting or lying down and require very little energy expenditure, such as sitting or lying down while watching television, playing electronic games, reading, and engaging in online teaching or learning. External factors such as restricted movement, online learning, and a lack of sports facilities are the main causes of decreased activity.[17] Specifically, students spend less time on transportation and exercise during online learning. This online learning increases students' time at home. This increased free time makes students

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prefer to rest and spend their time watching television, playing games, and so on. According to the results of the study, during the initial measurement, many respondents engaged in light activities, namely 49.1% in the intervention group and 56.1% in the control group. A similar finding can be seen from the results of a previous study that measured students' physical activity over the past 7 days using the IPAQ, which found that the majority of students' physical activity was classified as light activity, amounting to 115 students (79.3%).[18]

A college student is categorized as being in the developmental stage between the ages of 18 and 25. This stage can be classified as late adolescence, and from a developmental perspective, the developmental task at this age is to establish a strong life stance.[19] Teenagers' behavior is greatly influenced by their peers. Teenagers generally prefer discussing their problems and learning with their peers rather than having someone place themselves in a position to advise them and direct their lives.[20]Peer education is a process of training and motivating adolescents to engage in organized and informal educational activities with their peers (similar in age, background, and interests) over a specific period of time.[21]Peer education can improve knowledge, attitudes, beliefs, and skills and empower children to take responsibility for protecting their own health and that of their peers. Peer education can be conducted in small groups through individual interactions, and in various settings, such as schools and places where teenagers or young people gather.

A peer educator in peer education must have the following criteria: have leadership qualities in helping others, have good communication skills, have the ability to listen to others, be able to influence peers, and have more knowledge than the group.[22] In peer health education, effective communication is practiced. Communication is considered effective when the message is received and understood as intended by the sender, and the message is followed up with voluntary action by the recipient.[23]Communication will be effective if there is openness, empathy, and supportive behavior.[24]The results of the study showed that in the final measurement after peer education treatment by peer educators, many in the intervention group engaged in moderate activity (66.7%) and vigorous activity (24.6%). Meanwhile, in the control group, many still engaged in light activity (54.4%) at the final measurement.

Based on the results of the respondents' physical activity measurements in MET in the table above, it can be seen that in the initial measurement or before treatment in the intervention group, the average physical activity score carried out was 2190.00 MET, and in the final measurement after peer education treatment by peer educators, it became 6201.82. This shows an increase of 4011.82 MET. Meanwhile, the initial measurement in the control group, the respondents' physical activity averaged 3249.9 MET, and in the final measurement, the average was 2807.6 MET. This shows a decrease of 442.3 MET. This condition shows that through peer education activities, the process of conveying information through organized and informal educational activities with peers occurs. Several studies have shown that peer education brings changes in positive perceptions.[22] Peer education is an important means of influencing change at the group level by modifying norms in a positive direction.[25]

The Wilcoxon test results showed a p-value of 0.00 <α (0.05); the null hypothesis was rejected, which means there was a significant effect on physical activity after being given peer

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education by peer educators in the intervention group. This study is also in line with research conducted by Hidayati, which describes that health education with the peer education method can improve the knowledge and attitudes of primigravida mothers about breastfeeding.[26] This is the same as research conducted by Riyanto, which showed that there was a significant influence of health education intervention using the peer education method on the perception of premarital sex in adolescents (p-value 0.00).[27]

Peer health education methods can increase physical activity due to the process of conveying information and motivation carried out between peer groups where in this case, the peer educator acts as a source of information and motivator. The delivery of clear and precise information and motivation by peer educators will be able to increase the insight and awareness of adolescents about the importance of doing physical activity. The increase in physical activity through peer health education methods is considered very effective because the explanation and motivation are given by someone from the group itself, in this case, adolescents of the same age who have built trust will be easier to understand, and the provision of education can be done repeatedly with open communication between peer groups who have closer relationships so that the target group is more comfortable discussing.

Peer-to-peer health education methods are more beneficial because the delivery of peer education is carried out within their peer group, thus fostering more open communication. Considering that the respondents in this study consisted of adolescents of the same age, adolescence is a transitional period influenced by both individual factors (biological, cognitive, and psychological) and environmental factors (peers). Therefore, it can be said that the attitudes, conversations, interests, and appearance of peers significantly influence the information conveyed. Adolescents will feel comfortable discussing with their peers because they are on equal footing and can communicate openly. Peer education can also influence change at the group level by modifying norms in a positive direction.[25]

In the pre-treatment/initial measurements, there was no difference in physical activity between the intervention group and the control group, both were in the moderate activity category with MET scores of 2190.00 and 3249.9. This illustrates that both groups had the same initial stage in the study. However, in the post-treatment/final measurements, the analysis results showed a significant difference in physical activity between the intervention group and the control group (p-value 0.002). These results can be interpreted as indicating that peer education conducted by peer educators is meaningful or influential in physical activity. This is in line with Yusup's research, stating that adolescent interactions in peer groups can stimulate/stimulate new response patterns through learning.[28] In this case, the peer health education method can provide knowledge and attitudes in maintaining and protecting health.

The health education approach through the peer health education method for adolescents is considered necessary and important, that the information and health messages conveyed to adolescents come from the adolescent group itself.[25] Teenagers are happier, more comfortable, and more open when discussing issues related to sexual behavior or reproductive health compared to their parents.

CONCLUSION

There is a significant influence of peer educators on increasing physical activity among nursing students (p-value of 0.000). Peer educators are appropriate for providing a positive

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influence on adolescents. Recommendations from this study can serve as input for students to increase physical activity during the COVID-19 pandemic and as a reference for the nursing profession in providing education to adolescents/students regarding efforts to increase physical activity during the COVID-19 pandemic.

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