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Introduction of Traditional Games as a Way to Increase Physical Activity to Prevent Coronary Heart Disease at Al-Jihad Islamic Boarding School

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ABSTRACT

Coronary Heart Disease (CHD) is often caused by an unhealthy lifestyle, including lack of physical activity. Many Islamic boarding school students are unaware of the importance of physical activity to prevent coronary heart disease. Traditional Indonesian games, which are rich in cultural values, can be an effective means to increase physical activity while reintroducing cultural heritage to the younger generation. This activity aims to determine the effect of providing knowledge about the introduction of traditional games as an increase in physical activity in preventing coronary heart disease. The activity was carried out by providing knowledge. The level of change in knowledge was obtained by differentiating the results of the pre-test and post-test. Data calculations using statistical calculations were then carried out with a non-parametric analysis of the Wilcoxon signed-rank test. The activity showed an increase in students' knowledge about coronary heart disease and its prevention ($p<0.05$) and an increase in students' knowledge about the use of traditional games in increasing physical activity ($p<0.05$). Providing health education to students at the Al Jihad Islamic Boarding School in Surabaya was able to increase students' knowledge of the benefits of traditional games as an increase in physical activity to prevent coronary heart disease.

Keywords: Coronary Heart Disease; Islamic Boarding Schools; Prevention; Physical Activity; Traditional Games

INTRODUCTION

Islamic boarding schools, as Islamic educational institutions in Indonesia, play a crucial role in supporting health programs, particularly in promoting the importance of health and hygiene in daily life. The 2010 Healthy Indonesia vision stipulates that one of the key factors supporting the implementation of improved public health is Clean and Healthy Living Behavior. Therefore, PHBS implementation is not limited to the home environment but also occurs in schools, including Islamic boarding schools (Arranury, 2024).

Based on the 2016 non-communicable disease profile, coronary heart disease (CHD) in Indonesia is prevalent among people aged 60 years and above and those aged 35-59 years, with 2,228 and 1,934 cases, respectively. Meanwhile, the highest number of CHD patients in inpatient facilities is in the 45-64 age group, with 29,074 cases, and in the 65+ age group, with 14,733 cases (Nugroho, 2022).

Many Islamic boarding school students (pesantren) are unaware of the importance of physical activity in preventing coronary heart disease. Knowledge about the dangers of a sedentary lifestyle and the benefit of exercise is very limited among them. Furthermore, busy academic routines and a lack of sports facilities are major obstacles to increasing physical activity in Islamic boarding schools. Most students spend most of their time in classrooms or dormitories, which increases the

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risk of metabolic disorders and heart disease. Therefore, an approach within Islamic boarding schools is needed, through community service activities and education regarding the dangers of coronary heart disease and its prevention by increasing physical activity through playing traditional games.

LITERATURE OR CONCEPTUAL REVIEW

Cardiovascular disease (CVD) is the leading cause of death worldwide. According to the 2018 Indonesian Basic Health Research data, the prevalence of heart disease in Indonesia reached 1.5%, including Acute Myocardial Infarction (AMI). CHD is the heart disease with the highest incidence and the third leading cause of death worldwide, with a total of 17.8 million deaths annually. In 2015, the American Heart Association reported that the mortality rate from myocardial infarction reached 7.8-11.4% within 30 days. Myocardial infarction contributes to the highest mortality rate, at 15% worldwide (Airlangga, 2024).

Risk factors for acute coronary syndrome are divided into two: modifiable risk factors and non-modifiable risk factors. Modifiable risk factors include hypertension, hyperlipidemia, diabetes mellitus, obesity, smoking, physical inactivity, unhealthy diet, and stress. Meanwhile, some non-modifiable risk factors include age, gender, ethnicity, and a family history of coronary heart disease (Airlangga, 2024).

Younger generations (<45 years old) are at risk of experiencing symptoms of obstructive coronary atherothrombotic lesions, commonly known as premature coronary heart disease. Coronary heart disease generally occurs in older age, but young people are at an early stage of the coronary heart disease process. The incidence of coronary heart disease differs between older and younger ages due to differences in prognosis, clinical profiles, and risk factors. Furthermore, coronary heart disease is associated with decreased productivity in the working-age population (Nugroho, 2022).

CHD in young people has increased over time, although the incidence remains lower than in older populations. The manifestation of modifiable risk factors, one of which is physical activity, contributes to this increase in incidence. Changes in modern lifestyles have also contributed to the increasing prevalence of coronary heart disease. One of the most common risk factors is a sedentary lifestyle, which is a lack of physical activity in daily life (Nurhijriah et al., 2022).

Childhood is crucial for developing physical, cognitive, and social skills. However, sedentary behavior and lack of physical activity among children in Indonesia are significant issues that need to be addressed. Indonesian children are increasingly sedentary, with a growing trend of spending hours sitting in front of screens and engaging in minimal physical activity. As defined by the World Health Organization (2020), sedentary behavior is defined as waking behavior characterized by an energy expenditure of 1.5 METs (metabolic equivalents; multiples of basal metabolic rate) or lower while sitting, lying, or reclining. Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Increased energy expenditure and the resulting challenge to the cardiovascular system have several beneficial effects on physical health and significantly improve cardiovascular function. An estimated 57% of children in Indonesia are physically inactive. The consequences of sedentary behavior and lack of physical activity among children in Indonesia are widespread and serious, as they are a cause for concern and can lead to long-term health problems for these children, impacting their academic performance and life satisfaction (Duncan et al., 2023).

This inactive and unhealthy lifestyle can lead to fat accumulation in the body, slow metabolism, and increased levels of bad cholesterol (LDL) and triglycerides in the blood. This fat accumulation risks clogging blood vessels, including the coronary arteries, which restricts blood flow to the heart and increases the risk of heart attack. Furthermore, a sedentary lifestyle is also closely linked to hypertension, elevated blood sugar levels, and obesity, all of which are additional risk factors for coronary heart disease. These unhealthy lifestyles generally begin to develop during adolescence, characterized by prolonged sitting, lack of exercise, low-nutrient diets, smoking, and lack of sleep, all of which can negatively impact heart health in the long term (Nurachmah et al., 2024).

A sedentary lifestyle is one factor that can increase the risk of coronary heart disease. Regular exercise at moderate to vigorous intensity has been shown to reduce the risk of cardiovascular disease. Regular physical exercise helps regulate cholesterol levels, control diabetes and excess weight, and can even normalize blood pressure in some individuals (Saraswati & Lina, 2020). However, irregular or sudden exercise can trigger angina attacks in people with coronary heart disease. This chest pain occurs due to a lack of oxygen supply to the myocardial cells due to impaired blood flow through narrowed coronary arteries (atherosclerosis) (Lestari et al., 2023).

Traditional games have been shown to be linked to physical fitness. Improving physical fitness can be achieved in various ways, one of which is by implementing traditional games that have elements of physical fitness. Furthermore, traditional games also provide an element of enjoyment for those who play them, and some students have undoubtedly played traditional games. A good level of physical fitness has a positive impact on quality of life and health (Aulia et al., 2022).

Indirectly, traditional games can have a joyful effect on children who are playing them. According to Iswinarti, traditional games are games inherited from their ancestors, with cultural values, and can be useful for children's growth and development. Traditional games have different rules from other traditional games, and these traditional games can be played with more than one person in the game. This is supported by previous research by Munawaroh et al. that these traditional games can be used to increase cultural values and enhance the development of Indonesian national culture. Traditional games have a broad nature so that games in one region can also be found in other regions, and in general, each region also has its own traditional games. Traditional games are a legacy that is beneficial cognitively, effectively, psychomotor, and socially for children. Then, traditional games also contain various values, including cooperation, honesty, accepting defeat with grace, playing with sportsmanship, and many more values contained in them. Weight has a 0.72 times higher chance of being a protective factor against coronary heart disease. These findings align with a study by Tanasecu et al., which found that vigorous physical activity was 0.83 times more likely to be a protective factor against coronary heart disease. A study by Steward et al. also found that moderate and vigorous physical activity may be more protective against coronary heart disease than light physical activity (Aulia et al., 2022).

MATERIALS AND METHODS

Community service activities were carried out at the Al-Jihad Student Islamic Boarding School in Surabaya on May 17, 2012. Sampling was conducted using a total sampling method of all male and female students who participated in the activity. Forty students from the Al-Jihad Islamic Boarding School in Surabaya participated in the activity. With its existing facilities and easy access, the Al-Jihad Islamic Boarding School is a strategic partner for implementing community service programs aimed at increasing students' physical activity, one of which is through the introduction of traditional games that can prevent coronary heart disease.

The activity implementation consists of several stages: (1) Pre-Health education: Before the health education begins, students will be asked to fill out a questionnaire. The questionnaire serves as a 10-minute pretest. (2) Health education: Health education will be conducted by a team of lecturers and competent health workers. Health education materials include information on the effects of a sedentary lifestyle on heart health, as well as an explanation of the benefits of traditional games that can increase physical activity. This health education session will last 45 minutes, followed by a 15-minute question-and-answer session. (3) Traditional Game Demonstration: Following the health education session, the research team will demonstrate traditional games, such as stilts, jump rope, or sepak takraw. The purpose of this demonstration is to provide students with examples and direct participation in how to play and the benefits of traditional games in increasing their physical activity. The demonstration will last 1 hour. (4) Post-Health Education: Following the health education session and traditional game demonstration, students will complete a 10-minute post-test to evaluate their

understanding after participating in the program. Students will also be invited to participate in traditional games regularly.

The success of the program is assessed using several indicators, including student knowledge, activity, and health. The research team will also monitor changes in students' health after participating in the traditional games program.

RESULTS AND DISCUSSION

The health education session was successfully conducted and involved 40 male and female students at the Al-Jihad Islamic Boarding School in Surabaya. The health education session consisted of several sessions, starting with material on the impact of a sedentary lifestyle on heart health and explaining the benefits of traditional games that can increase physical activity. This session was followed by a question-and-answer session. All students participated enthusiastically. Furthermore, they arrived on time and followed the program from beginning to end, demonstrating their interest in participating. They were also active during the health education session, actively asking the presenters questions about the material presented. The session concluded with live demonstrations of traditional games such as stilts, jump rope, and sepak takraw.

The purpose of these demonstrations was to provide students with firsthand examples of how to play and the benefits of traditional games in increasing their physical activity.

The students' knowledge of coronary heart disease before and after the health education session showed an average pre-test score of 3.6 and a post-test score of 4.5, with an average increase of 0.9. The results were then subjected to a non-parametric Wilcoxon signed-rank test analysis due to the non-normal distribution of the data. The results of the Wilcoxon signed-rank test analysis are shown in Table 1.

Table 1. Results of the analysis test of students' knowledge about coronary heart disease before and after health education.

Test	Mean	Min	Max	P Value
Pre-Test	3,6	3	4	<.001
Post-Test	4,5	3,5	5	

Based on the statistical analysis above, it was found that there was a significant increase ($p<0.05$) in students' knowledge about coronary heart disease before and after the health education. The students' knowledge level about the benefits of traditional games in increasing physical activity before and after the health education showed an average pre-test score of 3.45 and a post-test score of 4.46, with an average increase of 1.01. These results were then analyzed using a non-parametric Wilcoxon signed-rank test due to the non-normal distribution of the data. The results of the Wilcoxon signed-rank test are shown in Table 2.

Table 2. Results of the analysis of students' knowledge about the benefits of traditional games in increasing physical activity before and after health education..

Test	Mean	Min	Max	P Value
Pre-Test	3.45	3	4	<.001
Post-Test	4,46	4	5	

Based on the statistical analysis above, it is known that there was a significant increase ($p<0.05$) in students' knowledge about the benefits of traditional games in increasing physical activity before and after health education.

DISCUSSION

Health education is conducted to convey health messages to the public or target groups according to the health problems faced by those groups. Public health education is defined as the process of change, growth, and development of individuals toward physical, spiritual, and social harmony and balance within their environment, enabling them to be capable and responsible for addressing their own health problems and those of their community (Iyong, 2020).

Health education aims to promote changes from unhealthy to healthy behaviors. This is achieved by disseminating health messages to instill and convince the target audience so they understand, and indirectly influencing their attitudes and behavior (Iyong, 2020).

People who engage in vigorous physical activity have a 0.72 times higher risk of being a protective factor against coronary heart disease. This finding aligns with a study by Tanasecu et al. (2002), which found that vigorous physical activity has a 0.83 times higher risk of being a protective factor against coronary heart disease (45). A study by Steward et al. (2017) stated that moderate and vigorous physical activity may act as a protective factor against coronary heart disease compared to light physical activity (Setyo Nugroho et al., 2022).

This finding is supported by Winzer14's study in the American Heart Association (AHA) journal, "Physical Activity in the Prevention and Treatment of Coronary Artery Disease," which states that regular physical activity is a primary preventative measure to reduce the incidence of coronary heart disease. This study's findings support the theory that physical activity can reduce sympathetic nerve tone, promote weight loss, and increase metabolism, thus improving blood circulation. Several epidemiological studies support the belief that regular physical activity can reduce the risk of coronary heart disease (Rondonuwu, 2021).

Traditional games have been shown to be linked to physical fitness. Improving physical fitness can be achieved in various ways, one of which is by implementing traditional games that have elements of physical fitness. Furthermore, traditional games also provide an element of enjoyment for those who play them, and some students have undoubtedly played traditional games. A good level of physical fitness has a positive impact on quality of life and health (Aulia et al., 2022).

CONCLUSIONS

Providing counseling to students at the Al Jihad Islamic Boarding School in Surabaya has increased their knowledge of the benefits of traditional games as a means of increasing physical activity to prevent coronary heart disease. This increased knowledge is expected to increase their participation and activeness in physical activity programs at the Islamic boarding school. Regular counseling programs are needed to further enhance students' knowledge and create a variety of interesting physical activities for students so that their motivation for physical activity is maintained. Long-term evaluation and ongoing interventions are needed so that students can maximize their implementation of increased physical activity to prevent CHD.

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Conflict of Interests

The authors declared that no potential conflicts of interest with respect to the authorship and publication of this article.

REFERENCES

Aulia, W., Suryansah, S., & Januarto, O. B. (2022). Pengaruh Permainan Tradisional Terhadap Tingkat Kebugaran Jasmani Siswa SMP: Literature Review. *Sport Science and Health*, *4*(1), 94–102. https://doi.org/10.17977/um062v4i12022p94-102

Berkel, D., (2023). Physical Activity and Cardiovascular Health: A Review. ScienceDirect. Available at: https://www.sciencedirect.com/science/article/pii/S0019483224000555[Accessed 23 February 2025].

Brett, G., et al., (2024). The Role of Physical Activity in Preventing Heart Disease. BMJ Cardiovascular Disorders. https://bmccardiovascdisord.biomedcentral.com/articles/10.1186/s12872-024-04036-1

Duncan, M., Salonna, F., Roscoe, C. M., Hanifah, L., Nasrulloh, N., & Luthfiana Sufyan, D. (2023). Sedentary Behavior and Lack of Physical Activity among Children in Indonesia. Children 2023, Vol. 10, Page 1283, 10(8), 1283. https://doi.org/10.3390/CHILDREN10081283

Iyong, E. A., Kairupan, B. H. R., & Engkeng, S. (2020). "Pengaruh Penyuluhan Kesehatan Terhadap Pengetahuan Tentang Gizi Seimbang Pada Peserta Didik di SMP Negeri 1 Nanusa Kabupaten Talaud." *Jurnal KESMAS*, *9*(7), 59–66. https://ejournal.unsrat.ac.id/v3/index.php/kesmas/article/view/31613

Lestari, S. D., Wahyuningsih, I. S., & Amal, A. I. (2023). Gambaran aktivitas fisik dan tingkat kenyamanan pasien dengan penyakit jantung koroner. *Jurnal Ilmiah Sultan Agung*, *2*(1), 575–582. https://jurnal.unissula.ac.id/index.php/JIMU/article/view/31327

Liu, Y., et al., (2023). Traditional Games and Physical Health in Youth. E-Journal of Health and Sports. Available at: https://ejournal.unesa.ac.id/index.php/jurnal-kesehatan olahraga/article/view/34994/31119

Nurhijriah, S., Patimah, S., & Yusuf, R. A. (2022). Pengaruh Aktivitas Fisik, Perilaku Menetap, Status Gizi dan Gangguan Kesehatan Mental terhadap Penyakit Jantung Koroner. Window of Public Health Journal, 3(3), 400-406.

Rohmah, A., (2021). Olahraga dan Permainan Tradisional. Malang: Fakultas Ilmu Keolahragaan, Universitas Negeri Malang.

Rondonuwu, R., Tuegeh, J., Bahuwa, S., & Sarimin, D. S. (2022). Aktivitas Fisik dan Risiko Penyakit Jantung Koroner. *Jurnal Kardiologi*, *5*(2), 20–29.

Saraswati, D., & Lina, N. (2020). Faktor Risiko Penyakit Jantung Pada Masyarakat Di Pos Pembinaan Terpadu (Posbindu) Puskesmas Cibeureum. *Journal Health & Science : Gorontalo Journal Health and Science Community*, *4*(1), 1–7. https://doi.org/10.35971/gojhes.v2i1.4426

Setyo Nugroho, A., Astutik, E., & Dwi Tama, T. (2022). Risk Factors for Coronary Heart Disease in Productive Age Group in Indonesia Article in Malaysian Journal of Medicine and Health Sciences ·. In Malaysian Journal of Medicine and Health Sciences (Vol. 18, Issue 2). https://www.researchgate.net/publication/359938073