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## Improving Students' Knowledge About The Importance Of Physical Activity Through Health Counseling At Mts Al Madani Sasak Panjang Bogor School

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### Abstract

Lack of physical activity among adolescents is becoming an increasingly worrying global health problem. WHO data (2022) shows that more than 80% of adolescents worldwide are not physically active enough, while the 2018 Basic Health Research (Riskesdas) recorded that 33.5% of Indonesia's population aged  $\geq 10$  years were physically inactive, with West Java reaching 37.5%. This study aims to determine the increase in students' knowledge about the importance of physical activity through health education based on the Health Belief Model (HBM) at MTs Al Madani Sasak Panjang, Bogor Regency. The study used a descriptive qualitative approach with pre-test and post-test questionnaire instruments administered in May 2026 to 9th grade students. The results showed an increase in three HBM components: perceived susceptibility increased from 23 to 26, perceived severity from 27 to 28, and perceived barriers from 18 to 22. Meanwhile, perceived benefits did not change (remained at 44), indicating a ceiling effect because students already had a fairly good understanding of the benefits of physical activity before the intervention. The largest improvement occurred in the perceived barriers component, indicating students were increasingly aware of real barriers such as limited time, laziness, lack of facilities, and the influence of device use. It was concluded that HBM-based health education was effective in increasing students' awareness of the risks and barriers to physical activity. Schools are advised to make this program a routine and ongoing activity, with concrete strategies to address the identified barriers.

**Keywords:** Physical Activity, Adolescents, Health Education, Health Belief Model, Student Knowledge

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## INTRODUCTION

Physical activity is defined as any bodily movement resulting from skeletal muscle contraction that results in an increase in energy expenditure above the resting level and consists of routine daily tasks including travel, work, or household activities, as well as movements or activities aimed at improving health (Wirakhmi, Ikit Netra & Purnawan, 2023).

Physical activity is essential for all adolescents, as well as everyone. Through physical activity, one can gain health benefits. The activities undertaken by adolescents are closely related to quality of life, health, and well-being. Therefore, the productivity of individuals without adequate physical fitness will not be comparable to that of those with optimal physical fitness. Likewise, those who lack physical activity will not achieve optimal fitness (Annisa *et al.*, 2024).

Lack of regular physical activity is a major contributing factor to chronic diseases that can lead to death. Lack of physical activity, a sedentary lifestyle, and an unhealthy and irregular lifestyle increase the likelihood of developing non-communicable diseases (NCDs). NCDs resulting from a lack of physical activity can lead to various health problems such as heart disease, stroke, high blood pressure, obesity, diabetes mellitus, and an increased risk of osteoporosis. Furthermore, lack of physical activity can also negatively impact mental health, as evidenced by increased levels of anxiety and stress, and a decreased quality of life and well-being (Syalfina1 *et al.*, 2024).

Adolescence is a transitional phase from childhood to adulthood. During this period, various changes occur. The maturation of the body's hormonal system affects physical composition. These changes occur very rapidly, affecting height, weight, and overall body composition. This process is known as puberty, and it is greatly influenced by the nutrition obtained from food. During this stage, adolescents require higher energy intake, but if this is not balanced with sufficient physical activity, it can lead to excess weight (Ministry of Health of the Republic of Indonesia, 2014). Physical activity aims to help adolescents reduce time spent on sedentary activities, increase calorie burning, and

manage weight. However, this physical activity needs to be done regularly to support a healthy lifestyle for adolescents (Annisa *et al.*, 2024).

During adolescence, physical activity can be used as a means of greater self-control. Teenagers who maintain high levels of physical activity are more likely to maintain good mental health compared to those with consistently low levels of physical activity. Research shows that adolescents spend more time engaging in activities such as watching TV, playing the internet, and playing video games (Jayanti, 2023).

In 2022, data from the World Health Organization (WHO) showed that more than 80% of adolescents worldwide were not physically active enough (WHO, 2022). The WHO stated that decreased physical activity was the fourth leading cause of death from cardiovascular disease worldwide (Syalfina1 *et al.*, 2024).

The 2018 Basic Health Research (Riskesdas) revealed that the percentage of the population aged  $\geq 10$  years who did not get enough physical activity reached 33.5%, an increase from the 26.1% recorded in the 2013 Basic Health Research. Physical inactivity is defined as less than 150 minutes of total physical activity per week. Considering that adolescents are included in the  $\geq 10$  years age group, this information indicates that many adolescents in Indonesia still do not meet the recommended physical activity levels. This increase in the percentage of people who do not get enough physical activity is important to note because it can increase the risk of obesity, non-communicable diseases, and various health problems later in life (2018 Basic Health Research).

According to the 2018 Basic Health Research (Riskesdas), the prevalence of physical inactivity in West Java Province among those aged 10 years and older reached 37.5%, higher than the national prevalence of 33.5%. Physical inactivity is a risk factor for overweight and obesity in adolescents (West Java Basic Health Survey, 2018).

Furthermore, in Asia, changes in modern lifestyles, high use of gadgets, and increasing sedentary behavior contribute to low physical activity in students. A study of secondary school students in Singapore showed that physical activity patterns and sedentary behaviors have changed significantly over time, indicating the need for more adaptive health education interventions in the school environment. Meanwhile, research on students in China suggests that a healthy physical education approach can improve physical literacy and support active lifestyles in adolescents. examined trends in physical activity among children aged 6-18 in China from 2000 to 2006. They found that time spent using computers increased, and time spent on homework, reading, writing, and drawing outside of school hours also increased from 2000 to 2004, although time spent on these behaviors remained stable in the following 2 years (CK John *et al.*, 2024).

Efforts to increase students' knowledge about the importance of physical activity can be achieved through practice-based education, video media, traditional games, and active learning in schools. Evidence from research in Indonesia shows that practice-based education can improve elementary school students' knowledge and physical activity behavior, while the use of educational media such as leaflets and videos has also been reported to improve students' understanding of physical activity. These findings suggest that health education designed with engaging and age-appropriate methods can be an effective step in fostering active habits from an early age (Fitriani *et al.*, 2020).

Thus, increasing students' knowledge about the importance of physical activity in Asia is highly relevant as part of promotional and preventive efforts. School-based interventions need to be strengthened so that students not only understand the benefits of physical activity but also are able to apply them in their daily lives. This approach is crucial for supporting adolescent health, reducing sedentary behavior, and building a healthier future generation (WHO, 2020).

RESEARCH METHODS

This study used a qualitative approach with descriptive methods to describe students' knowledge levels regarding the importance of physical activity before and after the intervention. This study was conducted in May 2026 at MTs Al Madani Sasak Panjang, Bogor Regency, West Java, with a population of 9th-grade students at the school. Meanwhile, the process of compiling and working on the research manuscript was carried out in June 2026. The research sample was selected using inclusion criteria, namely students who were present and willing to participate in the entire series of activities from beginning to end. Data collection was carried out using a structured questionnaire instrument through a pre-test and post-test scheme. This questionnaire was designed to measure students' understanding of the definition, benefits of physical and mental health, and the risks of non-communicable diseases due to lack of physical activity. The research procedure began with a pre-test to measure students' initial knowledge. Next, the intervention was given in the form of health counseling using an interactive lecture method and educational media that were interesting and appropriate for adolescents. This series of field activities concluded with a post-test to evaluate students' final understanding. The collected data were then processed and analyzed using descriptive statistics to present frequency distributions, percentages, and an overview of the increase in students' knowledge after being provided with the health education.

RESULTS AND DISCUSSION

Data collected from pre-tests and post-tests of MT Al Madani Sasak Panjang students demonstrate their perceptions of physical activity before and after physical activity counseling. Table 1 below displays the data details.

**Table 1. Distribution of Health Belief Model Variable Scores Before and After Health Education on Physical Activity**

| No | Variables                | Pre-test results | Post test results | Change |
|----|--------------------------|------------------|-------------------|--------|
| 1. | Perceived susceptibility | 23               | 26                | 3      |
| 2. | Perceived severity       | 27               | 28                | 1      |
| 3. | Perceived benefits       | 44               | 44                | 0      |
| 4. | Perceived barriers       | 18               | 22                | 5      |

**Analysis of Perceived Susceptibility and Perceived Severity**

Referring to the data in Table 1, it is known that there was an increase in the average score of the perceived susceptibility component by 3 points, namely from 23 in the pre-test to 26 in the post-test. This increase indicates that the health training provided directly in schools was quite effective in raising students' awareness of the dangers associated with a lack of physical activity. After receiving the counseling material, students began to realize that they were also at risk of experiencing various health problems if they continued to live a less active lifestyle and spend a lot of time in sedentary behavior. According to research conducted by (Khodaveisi *et al.*, 2021) Health education based on the Health Belief Model (HBM) significantly improved participants' perceived susceptibility. Researchers said this improvement indicates that participants felt more susceptible to disease after receiving the education than before the intervention. In other words, health education can increase awareness that lack of physical activity can lead to health problems in anyone, including school-aged adolescents.

Meanwhile, the perceived severity component showed an increase, but only by 1 point, from 27 to 28. The results indicate that most students already had basic knowledge about the negative effects of physical inactivity before the intervention. However, this understanding became stronger and more specific thanks to the guidance. Students not only learned that lack of movement is bad for their health, but they also began to understand the broader consequences, such as decreased physical fitness, decreased learning productivity, and an increased risk of several diseases in the future. These results

are in line with research. (Khodaveisi *et al.*, 2021) who found that HBM-based health education significantly increased participants' perceived severity. The researchers stated that this improvement indicated a better understanding of the consequences and impacts of physical inactivity after participating in the educational program.

In the context of the Health Belief Model (HBM), two elements that shape threat perception are Perceived Susceptibility and Perceived Severity. The more aware a person is of their vulnerability and the greater the understanding of the severity of their health problem, the greater the perceived threat. In this study, an increase in these two elements indicates that students began to consider physical inactivity as a real health problem for themselves. This condition is crucial for encouraging behavioral change because people who feel threatened by health problems tend to be more interested in taking preventative measures, such as exercising more often and reducing sedentary behavior in their daily lives (Khodaveisi *et al.*, 2021).

### **Perceived Benefits Analysis**

Based on the data in Table 1, the perceived benefits score showed no change between the pre-test and post-test, remaining at 44. This result differs from the perceived susceptibility and perceived severity components, which both increased after the counseling was given. The absence of changes in this score indicates that MTs Al Madani Sasak Panjang students actually already had a fairly good understanding of the benefits of physical activity since before the intervention was carried out, so that the score was already at a relatively high level (ceiling effect) and was difficult to increase further even though additional education was provided.

This condition aligns with the findings of several studies showing that the perceived benefits component tends to be more stable than other HBM components. Faghih *et al.*, 2024 In middle-aged women with overweight, it was found that HBM-based training was effective in increasing several constructs such as self-efficacy and social support, but the increase in perceived benefits was not always significant because the community generally already has basic knowledge that physical activity is beneficial for health, so that educational interventions have more impact on constructs related to perceptions of threats and barriers (Faghih *et al.*, 2024).

This is also supported by research Sheng *et al.*, 2023 A study of Chinese college students using the exercise health belief model examined the relationship between physical activity and peer support. The study found that perceived benefits are a relatively consistent and less volatile construct of the HBM compared to other components such as perceived barriers or self-efficacy, as beliefs about the benefits of exercise are generally formed early in life through daily experiences and exposure to health information (Sheng *et al.*, 2023). Meanwhile, a review by Hagger & Chatzisarantis regarding adolescent involvement in physical activity in the school environment, as summarized in a recent study on junior high school students' perceived competence and involvement in physical activity Guan *et al.*, 2023, also shows that adolescents' understanding of the benefits of physical activity for physical and psychosocial health is generally relatively good before being given an intervention program, so that the room for improving scores in this aspect is limited (Guan *et al.*, 2023).

Within the Health Belief Model (HBM), perceived benefits are an individual's beliefs about the positive benefits they will receive from taking a preventative action or healthy behavior. Unlike perceived susceptibility and perceived severity, which shape threat perceptions, perceived benefits serve as a key driver in the decision-making process to actually change behavior, especially when compared to perceived barriers (Khodaveisi & Azizpour, 2021). Although the perceived benefits scores in this study did not increase, the high initial scores that students already had remain important assets, because the belief in the benefits of physical activity that has been formed can strengthen the effect of increased perceived susceptibility and perceived severity in encouraging changes in student behavior towards a more active lifestyle. In other words, this health education plays a greater role in strengthening students' awareness of risks (threats) than increasing their knowledge about the benefits of physical activity, which is actually already well understood from the beginning.

## Perceived Barriers Analysis

Based on the data in Table 1, the perceived barriers score experienced the largest increase among all the Health Belief Model (HBM) components measured, namely from 18 in the pre-test to 22 in the post-test, or an increase of 5 points. This increase indicates that after participating in health counseling, students became more aware of various obstacles or barriers that can prevent them from engaging in regular physical activity, such as limited time due to schoolwork, laziness, lack of facilities or exercise equipment, fatigue, and the influence of gadget and social media use that takes up students' free time. Before receiving counseling, some students may not have been fully aware of these obstacles as factors that actually prevent them from being physically active, resulting in relatively low perceived barriers scores in the pre-test.

Within the Health Belief Model (HBM), perceived barriers are defined as an individual's perception of the obstacles, difficulties, or negative consequences that may arise when attempting a preventive action or healthy behavior. This component plays a crucial role because even when a person is aware of the susceptibility, severity, and benefits of a healthy behavior, the decision to actually change the behavior is still heavily influenced by the perceived barriers. Research results (Khodaveisi & Azizpour, 2021) in HBM-based counseling to increase physical activity showed that health education effectively helped participants identify practical, financial, and logistical barriers that prevented them from being physically active, so that these barriers could be more clearly recognized before efforts to overcome them were made.

This result is in line with research conducted by (Viktoryia Karchynskaya, 2024) among 14–17 year olds in Slovakia, which found that adolescents were able to identify more specific barriers to physical activity when asked to reflect on their experiences and daily routines, including barriers stemming from personal factors (such as motivation and fatigue) and environmental factors (such as limited time and facilities). This study confirms that awareness of barriers is an important first step before adolescents can develop strategies to overcome them. In line with this, research (Dai *et al.*, 2024) who developed and tested the validity of the perceived benefits and barriers to physical activity scale in adolescents in China also confirmed that perceived barriers are an HBM construct that consistently acts as a significant predictor of low levels of physical activity in adolescents. This study emphasizes that internal barriers (e.g., lack of motivation) and external barriers (e.g., limited facilities) need to be analyzed separately so that designed health interventions can be more targeted in reducing these perceived barriers.

In addition, research (Faghih *et al.*, 2024) A study in overweight middle-aged women found that HBM-based training effectively increased participants' awareness of barriers to physical activity, along with increases in self-efficacy and social support. The researchers explained that increased awareness of barriers does not mean the education has failed, but rather indicates that participants have a more realistic and critical understanding of their own conditions and environment, which can ultimately lead to the emergence of adaptive strategies to overcome these barriers. This finding is also supported by research (Khodaveisi & Azizpour, 2021), which states that HBM-based health education can increase participants' critical awareness of various barriers to healthy behavior, as part of the cognitive process that precedes actual behavioral change.

Within the Health Belief Model (HBM), perceived barriers are defined as an individual's assessment of various obstacles, both real and perceived, that may prevent a person from engaging in a healthy behavior. The higher the perceived barriers, the more likely a person will avoid or delay the behavior, unless the perceived benefits and perceived threats (perceived susceptibility and perceived severity) are deemed to outweigh the barriers. In this study, an increase in perceived barriers scores can be interpreted positively as a form of students' critical awareness of the real obstacles they face in carrying out routine physical activity. This awareness is an important asset for the next stage of intervention, namely equipping students with concrete strategies to overcome these obstacles, such as time management, optimal utilization of available facilities, and reducing the time spent using devices



for less beneficial activities, so that the increased knowledge can be truly realized in changes in students' daily physical activity behavior.

## CONCLUSIONS

Based on the results of health education regarding the importance of physical activity given to 9th grade students of MTs Al Madani Sasak Panjang, Bogor Regency, it can be concluded that the health education intervention based on the Health Belief Model (HBM) was generally successful in increasing students' knowledge and perceptions of physical activity. Score improvements were seen in almost all HBM components, namely perceived susceptibility (from 23 to 26), perceived severity (from 27 to 28), and perceived barriers (from 18 to 22), while perceived benefits did not change (remained at 44) because students already had a good understanding of the benefits of physical activity since before the intervention was given (ceiling effect). The greatest increase occurred in the perceived barriers component, which indicates that after the education, students became more aware of various real obstacles that can prevent them from being physically active, such as limited time, laziness, lack of facilities, and the influence of gadget use. Critical awareness of these obstacles is an important step towards more real behavioral change, because it allows students to start thinking about strategies to overcome these obstacles. Overall, HBM-based health education was effective in increasing students' awareness of the threats (susceptibility and severity) and barriers related to lack of physical activity, although it did not have a significant impact on increasing understanding of the benefits, which were already relatively high from the start.

Based on these results, it is recommended that schools make HBM-based health education a routine and ongoing program, not just a one-time activity, so that the knowledge that has been formed can be maintained and strengthened in the long term. Future education materials also need to be more focused on concrete strategies to overcome the barriers to physical activity that students have recognized, for example through time management training, the provision of more adequate sports facilities in the school environment, and the involvement of peer and family support. For future researchers, it is recommended to use a more robust research design such as a quasi-experimental with a control group, and expand the number of samples and research locations so that the results obtained can be generalized more widely.

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