

## DIFFERENCES IN THE INFLUENCE OF MUSIC RHYTHM ON MOOD AND AVERAGE SPEED WHEN EXERCISE

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### Abstract

Running while listening to music is thought to be able to increase a person's average speed when running through the mood when listening to music. The aim of this research is to determine the difference between different musical rhythms on mood and average speed when running. The method in this research uses a pre-test and post-test to determine the mood of the sample being tested when running while listening to different music rhythms, while the post-test test is to determine the difference in the average speed of the sample when the test was carried out. The sample used in this research was class X high school students with an average age of 16 years. The measuring tools used in this research are the profile of mood states questionnaire to determine the difference in mood before and after treatment, and the Strava application to determine the difference in average sample speed when the test was carried out. The results of this study show that slow rhythmic music has more influence on a person's mood when running than moderate and fast rhythmic music. This is proven by the results of the questionnaire after the test was carried out that slow music has an average of 168, greater than moderate music with an average of 154 and fast music with an average of 34. Meanwhile, in terms of speed average, each different musical rhythm has difference to a person's average running speed. This is proven by the average test results (pace) with the Strava application, slow music has an average of 11 km/m, medium music 10 km/m and fast music 8 km/m. The conclusion obtained from this research is that slow music rhythms have more influence than medium and fast music rhythms on mood when running and different music rhythms make a person's average speed different when running depending on the rhythm of the music they listen to.

**Keywords:** average speed, music rhythm, mood, sports

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## INTRODUCTION

Regular exercise has beneficial effects on health, especially helping to reduce and prevent various cardiovascular diseases, metabolic syndrome disorders and osteoporosis (Yuniarti & Afriwardi, 2015). Not only is it done regularly,

measured exercise also really helps the body achieve the desired health (Wahyuni et al., 2020). Problems that often arise in achieving measurable and regular exercise are lack of motivation, allocating time for exercise (Praditasari et al., 2018), laziness, and busyness factors (Lema & Cahya, 2019). Research by Pramudya & Wijono (2022) states that intrinsic motivation accounts for more than 80 percent of a person's participation in sports activities. Several studies above explain that the main factor that influences someone to exercise is motivation.

A person's motivation in carrying out sports activities can be increased through music listening intervention (Lane et al., 2011). Van Der Vlist et al., (2011) explained that musical rhythm intervention during exercise can increase a person's motivation and focus of attention during exercise. This research explains that the rhythm of music listened to while exercising can indirectly increase enthusiasm in unleashing one's speed and endurance abilities. The musical rhythm in question is the use of classical, rock, slow, slow and pop music rhythms in exercise which can produce different psychological responses in a person (Zheng & Lam, 2022). A phenomenon that occurs and often appears in relation to music is listening to music while exercising. When music is listened to while doing sports activities, it can influence mood and stimulate sports movements to become more rhythmic and flexible in accompanying the intensity of the chosen sport, so that the sports activities carried out can create a feeling of pleasure (Brandt et al., 2019). The feeling of pleasure that arises when exercising by listening to this music will later make exercise activities more enthusiastic and feel more comfortable when exercising. The rhythm of music listened to while exercising has the ability to regulate mood and stimulate rhythmic movements which can be a factor in increasing exercise intensity (Brandt et al., 2019).

Running, as a sport that doesn't need to be studied much, is people's choice because of the various benefits that can be obtained from running. Running can provide health benefits for the body if done with the correct technique, at the right

time and regularly (Admin & Mujahidin, 2020). Apart from that, running can also reduce weight, improve the cardiovascular system and increase blood circulation to the brain which improves cognitive function and improves a person's mood (Pane, 2015). One of the running sports that is often found in society is jogging. According to Parengkuan and Mayke (2021) jogging is a running sport with a low intensity that is carried out continuously over a long period of time. This long duration of time means that jogging is often done while listening to music. Listening to music while jogging makes you in a better mood and more focused when exercising. Music can be used to increase brain focus when carrying out activities and learning for someone (Prima, 2018). Apart from influencing your mood when running, music also influences your average running speed as well. Listening to music you like while running can increase a person's speed and distance traveled (Cole & Maeda, 2015). A person's average running speed was observed to be much faster when listening to music than without music (Jebabli et al., 2020). Different music rhythms also have an effect when jogging. According to Negara (2022) different music genres can affect the mood of someone who listens to it. Slow and moderate rhythmic music makes sports activities more relaxed, while fast rhythmic music makes exercise more enthusiastic.

According to research conducted by Pradiptasari et al., (2018), there are differences in mood when running while listening to music and without listening to music. Meanwhile, according to Fatahilah and Syafutra et al., (2019), running while listening to music has an influence on a person's distance traveled. However, none of the several studies conducted have clearly explained the effect of different musical rhythms on a person's mood and average speed when running. Therefore, this research was conducted to find out how different musical rhythms affect the mood and average speed of someone who is jogging or running. With this research, researchers hope to make physical activity or similar activities such as sports more enjoyable, thereby making readers more aware that sports are fun activities and have many benefits. Carrying out recreational sports has several

benefits, such as generating joy, happiness and better physical condition (Yusvitadadari et al., 2023).

## METHOD

The research was conducted quantitatively with an experimental research design. The research design uses a pre-test and post-test to test the mood of the sample, where the researcher will carry out a test before and after the test is carried out, namely by giving a profile of mood states (POMS) questionnaire before the test and after the test to be filled in by the sample being tested. Meanwhile, the average speed test only uses a post-test, where the data is taken from the Strava application data used. The sample used in the research was class X high school students with an average age of 16 years. Researchers chose a sample with an average age of 16 years because at that age the emotions of the sample were still easily influenced by stimuli received from outside the body. The results of the running tests and questionnaires obtained will be used to compare a person's mood and average running speed when running with the help of hypothesis testing using paired sample tests and Kruskal Wallis with the SPSS application. This is in line with research that requires data on the emotions/mood of the samples being tested.

## RESULT AND DISCUSSION

The description of the research samples used describes the characteristics of each sample from each group used. Examples of several characteristics that influence research are height, weight, leg length and several other characteristics. Each group of musical rhythms is depicted by an X, namely the slow musical rhythm group (X1), the medium musical rhythm group (X2), and the fast musical rhythm group (X3).

**Table 1.** Sample Characteristics

Variable	Group	N	Mean/ Frekuesnsi	Standar Deviasi
Year	X1	10	15,90	0,316
	X2	10	16,10	0,568
	X3	10	16,00	0,667
Gender	X1	10	M/4 - F/6	

	X2	10	M/4 – F/6	
	X3	10	M/5 – F/5	
Weight	X1	10	58,40	9,812
	X2	10	50,70	7,646
	X3	10	59,50	12,358
High	X1	10	159,40	9,513
	X2	10	160,80	7,115
	X3	10	163,40	4,858
Length of Limb	X1	10	97,70	4,218
	X2	10	98,80	1,874
	X3	10	99,70	2,312
Pulse Rate Before Running	X1	10	81,60	4,526
	X2	10	79,10	3,143
	X3	10	82,60	4,326
Pulse Rate After Running	X1	10	133,70	4,668
	X2	10	137,00	3,944
	X3	10	134,80	2,898

Based on the results of this analysis, it is known that each group has a different mean. This can happen because the sample used was selected randomly (lottery). This selection system means that there are differences in the means for each group variable tested. However, from the differences in table 1, the means found are not too far apart, in fact there are several variables that have the same mean in their groups. Apart from analyzing sample characteristics, researchers also tested differences in mood and average speed when running while listening to music to strengthen the research data carried out.

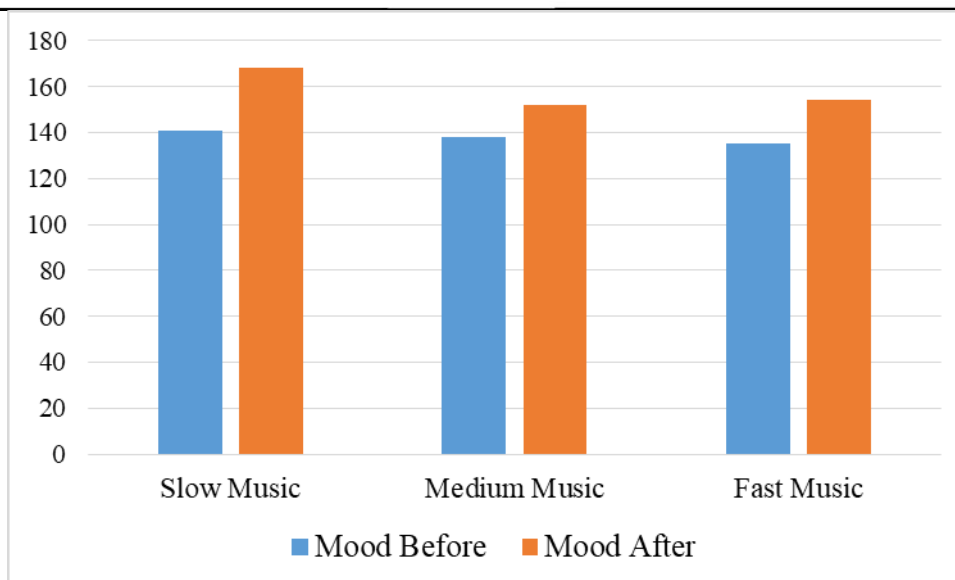
- a. Test the hypothesis of differences in mood before running and mood after running using parametric paired sample test statistics.

**Table 2.** Mood Difference Hypothesis Testing

Group	<i>Mean ± SD</i>		p-sig
	<i>Pretest</i>	<i>Posttest</i>	
X1	141,30 ± 20,011	168,40 ± 23,448	0,016*
X2	135,00 ± 26,787	154,20 ± 34,599	0,090
X3	135,00 ± 26,787	34,599 ± 10,941	0,108

\* : Significant

Table 2. shows the results of hypothesis testing of differences in mood variables before running and after running. The results of the analysis show that there is an influence in the X1 p-Sig group (< 0.05).



**Figure 1.** Mood Diagram Before and After Treatment

- b. Test the hypothesis of differences in mood using the non-parametric statistic Kruskal Wallis test.

**Tabel 3.** Mood Difference Hypothesis Test

Group	Mean ± SD	p-sig
X1	27,10 ± 33,581	
X2	19,20 ± 45,663	0,650
X3	19,20 ± 45,663	

Table 3. shows the results of the hypothesis test on the influence of the mood difference variable. The analysis results show that there is no significant difference, this is proven by p-Sig (> 0.05).

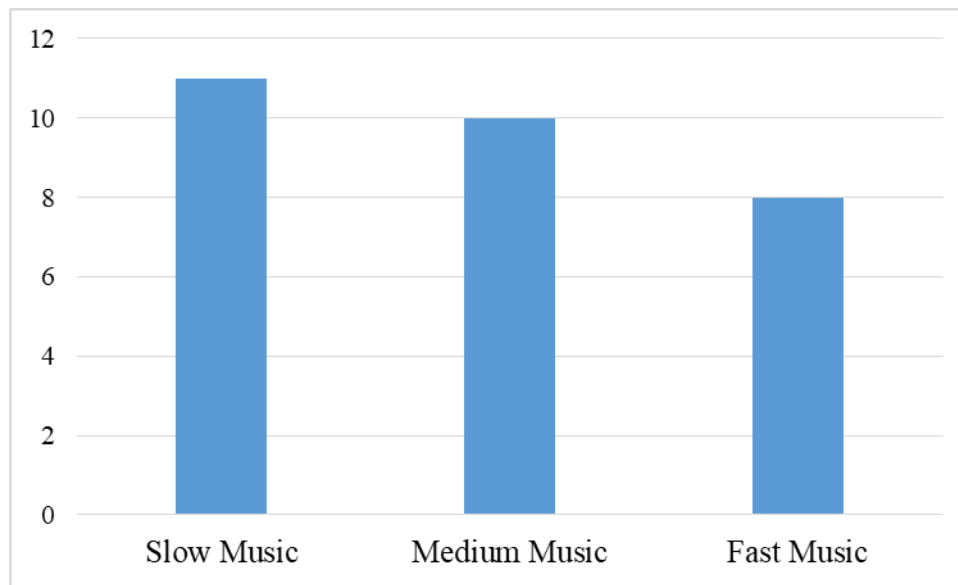
- c. Test the hypothesis of differences in mean speed using the non-parametric statistic Kruskal Wallis test.

**Tabel 4.** Speed Average Difference Test

Group	Mean ± SD	p-sig
X1	11,00 km/m ± 1,563 km/m	
X2	10,20 km/m ± 1,549 km/m	0,001
X3	8,00 km/m ± 0,816 km/m	

Table 4. shows the results of the hypothesis test of differences in the mean speed variable when running. The results of the analysis showed that there were

significant differences between the 3 groups of 3 types of music on the average running speed, this was proven by p-Sig ( $< 0.05$ ).



**Figure 2.** Average Speed Diagram

## Discussion

Based on the results of the analysis carried out, the samples in this study have the same characteristics in several aspects, but there are several characteristics that have differences that are not very significant. In this study, the researcher tried to make the samples used in the research have differences that were not too striking, this is because if there are several differences that are quite striking it will make the research results inappropriate and affect the results of the analysis carried out. In the slow rhythm group, music has a slow tempo so that it makes the listener more relaxed and relaxed. Slow rhythmic music is more influential when used to reduce stress and calm the listener than fast music which increases the listener's pulse rate and stress (Nilsson, 2009). Meanwhile, in the medium and fast music rhythm group, the listeners were more enthusiastic about running because the tempo of this music rhythm was faster than the tempo of the slow music rhythm. Fast rhythmic music can provide enthusiasm and create an atmosphere for anyone who listens to it (Testamentyas et al., 2018). Meanwhile,

in the group, medium and fast music rhythms had the same influence on the mood of the samples tested.

After knowing the differences between the three musical rhythms and mood, the researchers also aimed to compare the three musical rhythms to find out the differences in mood before the treatment was given and after the treatment was given. There is an improvement in mood when someone runs while listening to music (Praditasari et al., 2018). In this case the researcher used a pretest and posttest type of research using the questionnaire that was provided. Data obtained from the questionnaire shows that the average mood of all groups has similar data. Likewise, the results of the questionnaire after the treatment was given showed that the average mood of each group, starting from the slow, medium and fast music rhythm groups, had the same and similar average. From this data, it is known that each musical rhythm has a difference in mood, but when these three musical rhythms were compared, no significant or striking differences were found in any of the musical rhythms. Apart from having an effect on mood, different musical rhythms also have an influence on a person's average speed when running. According to Fatahilah and Syafutra (2019), there is a difference in the average speed of a person when jogging while listening to music and jogging without listening to music.

This can happen because the tempo of the music that each group listens to is different. In the slow rhythm group, music has a slow tempo which makes the listener more relaxed and relaxed. The rhythm of pop music with a slow tempo has a significant effect on reducing stress (Yuvi & Wahyuning, 2021). In the moderate music rhythm group, the tempo is slightly faster than the slow music rhythm, and in the fast music rhythm group, the tempo is faster than the slow and medium music rhythm. Fast rhythmic music can provide enthusiasm and create an atmosphere for anyone who listens to it (Testamentyas et al., 2018). This goes back to the initial discussion which stated that a person's mood differs from the



rhythm of the music they listen to, so that when a person's mood decreases or increases, the person's average speed when running is also affected and the average speed becomes different too.

## CONCLUSION

From the data analysis and discussions that have been carried out, it can be concluded that slow music rhythms have more influence on a person's mood when running than medium and fast music rhythms. Of the three musical rhythms that were compared, there were no significant differences or differences. Listening to different music rhythms makes a person's average speed different when exercising.

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