

HIGH-INTENSITY INTERVAL TRAINING PROGRAM: ITS RELATION TO HEALTH-RELATED FITNESS AND ATTITUDE OF GRADE 12 STUDENTS

JARELL R. GATCHALIAN, LPT
Jarellgatchalian025@gmail.com
Laguna State Polytechnic University, Philippines

ABSTRACT

In order to promote physical activity, a healthy body, and an understanding of the importance of physical education in daily life, a high intensity interval training program was added to the Grade 12 Senior High School students at San Pedro Relocation Center National High School – Landayan Annex during P.E classes. Whether the High Intensity Interval Training program may assist students in achieving their academic goals while also assisting them in being healthier and more positive is the subject of this study.

It sought to answer the following statement: The level of High Intensity Interval Training Program, the level of health-related fitness, the level of attitude in P.E classes, the significant relationship between High Intensity Interval Training Program and health related fitness and attitude of the Grade 12 students.

The descriptive method was used to gather information about the relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E of Grade 12 Students. Quantitative method was implemented in the research that uses figures and measurable forms such as questionnaires and survey assessment to determine the relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E as judged by Grade 12 students. It is a method of studying events or data in a methodical manner. The researcher will use purposive sampling techniques in getting the respondents to determine the relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E of Grade 12 Students. This study is implemented to Grade 12 students (36) of San Pedro Relocation Center National High School Landayan Annex during the First Semester of school year 2022-2023.

The mean and standard deviation, frequency, and percentage are used to measure the level of HIIT Program, Health-Related fitness, attitude towards P.E and Spearman Rank Correlation was used to find significant relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E of Grade 12 Students.

Finding revealed the following: (1) The High Intensity Interval Training Program is effective in terms of timed intervals, workout intensity, and safety.

(2) The level of the health-Related Fitness of the students Cardiovascular Endurance resulted into 38.89% Excellent, Muscular Strength resulted into 27.78% Good, Muscular Endurance resulted into 38.89% Average, and Body Composition resulted into 66.67% classified as normal. (3) Students in grade 12 have a positive attitude toward physical education, with high levels of interest, satisfaction, and comfort. Furthermore, (4) study reveals that HIIT Program has no significant correlation between health-Related Fitness and Attitude towards P.E.

Based on the results and conclusion, the following recommendations was highlighted: College students should adopt the High Intensity Interval Training Program since their physical makeup makes it easier for them to complete the program's exercise sets. The workouts are simple for them to complete, and they are appropriate for college students participating in the Path Fit program.

Keywords:

High Intensity Interval Training Program, Health Related Fitness, Attitude, Students.

INTRODUCTION

A high intensity interval training program was added to the Senior High School students' Health Optimizing Physical Education course in order to encourage physical activity, a healthy body, and to recognize the value of physical education in daily life. The purpose of this study is to determine whether the High Intensity Internal Training program can help students achieve their academic goals while also helping them become healthier and more positive.

Physical inactivity is said to be its own pandemic. It contributes significantly to non-communicable chronic diseases, resulting in more than three million premature deaths each year globally and costing the healthcare systems, conservatively estimated at \$53.8 billion in 2013. The World Health Organization's global recommendations for PA for health were not being met by 81 percent of teenagers (ages 11 to 17) and 23 percent of adults around the world prior to the COVID-19 outbreak, and the trend was that time spent engaging in sedentary behavior was rising more rapidly than physical inactivity.

People's lives are in danger as a result of the COVID-19 pandemic. As of October 14th, 2020, there were 37,888,384 confirmed cases, including 1,081,868 fatalities. As there are still no quick fixes or miraculous answers, using all of the available resources is essential to locating the answer. Preventing the mixing of susceptible and infectious individuals through early case discovery or contact reduction is one of the most important strategies for reaching this goal. Other crucial tactics that have been demonstrated to be extremely effective in restricting the disease's spread include quarantines and lockdowns. These severe measures, however, have effects that go beyond money. Global population changes in lifestyle, such as reduced physical activity (PA), a poor diet, and necessary actions like social isolation brought on by lockdowns, can also have an impact on people's physical and mental health.

This study aimed to determine the Effect of High intensity Interval Training program to health related fitness and attitude of grade 12 students.

1. What is the level of High Intensity Interval Training Program in terms of:
 - 1.1 Timed Interval
 - 1.2 Intensity of Workout; and
 - 1.3 Safety?
2. What is the level of health related fitness in terms of:
 - 2.1 Cardiovascular Endurance
 - 2.2 Muscular Endurance
 - 2.3 Muscular Strength; and
 - 2.4 Body Composition?
3. What is the level of attitude in P.E in terms:
 - 3.1 Interests towards P.E
 - 3.2 Satisfaction; and

3.3 Comfort?

4. Is there a significant relationship between High Intensity Interval Training Program and health related fitness of the Grade 12 students?
5. Is there a significant relationship between High Intensity Interval Training Program and attitude in P.E of the Grade 12 students?

REVIEW OF RELATED LITERATURE

High-intensity interval training, according to Biddle (2015), cannot be a practical public health approach since few individuals will adopt or stick with it. This result is supported by research on competence perceptions, the psychologically unpleasant effects of high-intensity exercise, the affective aspect of attitudes, the less conscious components of motivated behavior that reflect our preferences, and analysis utilizing the RE-AIM framework. Batterham contends that this assessment of high-intensity interval training is based on a limited and antiquated definition and that genuinely useful and scalable regimens have been and are still being created. He claims that the alleged discomfort connected to this kind of exercise has been exaggerated. Instead than encouraging the already active to do more, Biddle contends that the best course of action is to help the least active become more active. Traditional methods of promoting physical activity, according to Batterham, have failed miserably. He suggests that high-intensity interval training could be a successful population strategy for generating quick physiological adaptations beneficial to the general public's health, independent of changes in total physical activity energy expenditure. This is done within an evolutionary framework for health promotion.

As cited by <https://www.twinkl.com.ph> (2017) A time interval is the amount of time between two given points in time. An example of this is: "The time interval between three o'clock and four o'clock is one hour." Intervals of time are measured in different units: every unit describes a different amount of time, and certain units will be better suited to specific lengths of time. For example, if you were cooking something in the oven, you would choose to measure the time in minutes, or maybe hours. If you were waiting for your birthday, however, you might measure the remaining time in days, weeks, or months, (depending on how far away it was). So, when we ask, "what is time measured in?", we are asking about what units are used to measure time. The smallest amount of time that we would use every day is a second. There are 60 seconds in a minute, and 60 minutes in an hour. And 24 hours makes up 1 day. These types of time units can be recorded with a watch or a clock. If you want to measure bigger units of time, you will need a calendar.

A fundamental right is the right to work in a safe environment. Controlling risks and the physical, psychological, and material circumstances they are related with is the state of being safe to safeguard people, property, environments, and reputations. Any employer must manage workplace safety in accordance with the law and its obligations to society, communities, and the environment. (Ghosh, 2021)

According to the study of Chen, A. (2017) The research on interest in physical education, particularly situational interest, is the main topic of this article. Children and teenagers have been known to be highly motivated by their interests. A sizable body of research has accumulated demonstrating that situational interest drives students to engage in physical exercise based on a conception of individual and situational interest. The findings also suggests that situational interest may not have much of an effect on academic success. Teachers can, however, exert control over it and manage it to produce a situationally fascinating learning environment that will increase student engagement. One gap in this field of study is the paucity of research on individual interest and how it develops. We contend that in order to properly comprehend the four-phase theoretical model of interest development in the physical activity domain, it is required to strengthen the research on individual interest and its interaction with situational interest.

As stated in the study of Rojo-Ramos J. (2022) Higher levels of physical activity have also been strongly linked to superior academic achievement in primary school. Physical exercise satisfaction during physical education classes leads to enhanced health and adherence to future good lifestyle practices. A questionnaire with many elements connected to possible good and negative sensations experienced during the practice was given out to students in Extremadura to see how satisfied they are with the physical activity they engage in.

According to Brad (2013) High-intensity interval training (HIIT), which differs from moderate-intensity aerobic exercise, involves alternating brief bursts of intensive exercise with recovery periods of passive or mild-intensity movement. The work intervals typically last between 15 and 4 minutes and are between 80 and 95 percent of the individual's maximal heart rate. Recovery intervals typically last the same length of time as the intensive work interval or slightly longer and consist of passive rest or light activity at 40% to 50% of maximal heart rate. Commonly, the combined work/rest interval is performed six to ten times. Therefore, depending on how long the work and rest periods last, the overall HIIT exercise time can be anything from 10 and 40 minutes or more. HIIT has long been a crucial training method for athletes in competitive sports because it is highly good at triggering physiologic changes that boost performance. Although higher intensity exercise increases the risk of musculoskeletal injury and cardiac problems, HIIT used as an athletic training component has typically been associated with low risk. Recent studies utilizing older adults and those with a range of health issues suggest similar low cardiovascular event rates, consistent with the more widely used moderate-intensity aerobic exercise technique, even if further research is required. While experts continue to assess the safety of HIIT, it appears that, with the right guidance and supervision, persons with a variety of health issues can safely engage in HIIT.

At this juncture Fairin F. et al. (2018) indicates High Intensity Interval Training (HIIT) is a style of exercise that alternates between short bursts of high and low intensity activity. The physical components can be improved very effectively and efficiently with this kind of training. The choice of an effective practice strategy will be highly beneficial because improving athletes' performance is tied to how one improves the physical components. The purpose of this study is to examine the benefits of HIIT on boosting explosive power, speed, and agility. Quantitative quasi-experimental methods are used in this kind of study. The study's design utilized a matching-only approach, and the t-test was used for data analysis (paired sample t-test). The results after six weeks of treatment revealed a noticeable improvement in explosive power, speed, and agility. Plyometric exercise was employed in this study as a high-intensity activity while running was used as a mild- to moderate-intensity exercise. Improvements in neuromuscular features, which have an impact on muscle performance and strength, were the cause of the rise. After analyzing the data, researchers came to the conclusion that exercises involving high-intensity interval training had a substantial impact on the development of power limbs, speed, and agility.

According to Engel (2018), the training regimens of juvenile and teenage athletes from different sports, a growing body of research has shown the effectiveness of HIIT or similar training regimens, such as sprint interval training. According to ESs, HIIT did not clearly outperform alternative training methods for boosting VO₂peak. HIIT produced small and substantial mean ESs on relevant aerobic (running performance in incremental step tests) and anaerobic (sprint running, jumping, and repeated sprint ability) performance metrics, but it also increased VO₂peak by a significant amount more than alternative training regimens. Therefore, in the training of child and teenage athletes, HIIT may be a time-effective and suitable training approach for raising anaerobic and aerobic performance while leaving enough time for strengthening sport-specific abilities, technique, and tactics.

METHODOLOGY

Research Design

The descriptive method was used to gather information about the relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E of Grade 12 Students. Descriptive research is the research design in which data is collected in a qualitative manner and analyzed using quantitative procedures (Nassaji, 2015). Descriptive research refers to the scientific methodology in which observation of the sampled population is carried out in its natural surroundings. Descriptive research methodology intends to find out ‘what’ related to a phenomenon. In this method, data are collected qualitatively and analyzed through a quantitative method. Data is collected through methods like survey, interview, correlation study, observation study, or content analysis. Moreover, the observer does not intervene in this observation process or influence any of the variables of the study (Lambert and Lambert, 2012).

Quantitative method was implemented in the research that uses figures and measurable forms such as questionnaires and survey assessment to determine the relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E as judged by Grade 12 students. It is a method of studying events or data in a methodical manner. It also provides solutions to inquiries that seek to justify links between quantifiable variables to explain, forecast, or regulate a phenomenon. According to Aliaga and Gunderson (2002), Quantitative research is explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (statistics). In another definition according to Muijs (2004) quantitative research is essentially about collecting numerical data to explain a particular phenomenon.

Respondents of the Study

This study is implemented to Grade 12 students (36) of San Pedro Relocation Center National High School Landayan Annex during the First Semester of school year 2022-2023. The researcher will use purposive sampling techniques in getting the respondents to determine the relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude in P.E of Grade 12 Students. According to Creswell (2012), purposive sampling means that to learn or understand the essential phenomenon, a researcher selects individuals and sites intentionally.

Research Procedure

The gathering process began by making self-administrated questionnaire consisted of questions relating to the High Intensity Interval Training Program, health-related Fitness, and attitude towards P.E. Upon the approval by the thesis adviser, the questionnaire was administered to the respondents by asking permission from the principal of San Pedro Relocation Center National High School – Landayan Annex. Upon approval of the said request, copies of the questionnaire were distributed to the respondents.

The data was collected during the school year 2022-2023. The respondents were first instructed on the study's objectives, then on the parts and mechanics of the questionnaire, to obtain honest and complete responses. The information was obtained, organized, and presented in a tabular format for analysis.

Research Instrument

The questionnaire was used as the main data-gathering tool. The instrument is consisted of the four sections which are as follows:

Section I – for the High Intensity Interval Training Program in terms of time interval, intensity of work and safety.

Section II – for the health-related Fitness in terms of Cardiovascular Endurance, Muscular Endurance, Muscular Strength, and Body Composition.

Section III – for the the level of attitude in P.E in terms of Interest towards P.E, Satisfaction and Comfort.

The Likert Scale is used for the interpretation of the corresponding values guided in interpretation of data gathered from the survey checklist.

Rating	Scale	Evaluation of HIIT Program / Health and Educative Outcomes
		Interpretation
5	4.20-5.00	Highly Effective
4	3.40-4.19	Effective
3	2.60-3.39	Moderately Effective
2	1.80-2.59	Less Effective
1	1.00-1.79	Not at all Effective

Statistical Treatment

This study will use appropriate statistical treatment to determine the relationship of High Intensity Interval Training Program to the Health-Related Fitness and attitude of Grade 12 students.

The statistical treatment that employed in this study are the following:

The mean and standard deviation, to determine the level of HIIT Program in terms of time interval, intensity of workout and safety.

The mean and standard deviation, to determine the level of Health-Related fitness in terms of Cardiovascular Endurance, Muscular Endurance, Muscular Strength, and Body Composition.

The mean and standard deviation, to determine the level of attitude in P.E in terms of Interest towards P.E, Satisfaction and Comfort.

Spearman Rank Correlation were used to find significant relationship of High Intensity Interval Training Program to the Health-Related Fitness and Attitude towards P.E of Grade 12 Students.

RESULT AND DISCUSSION

Table 1. Level of High Intensity Interval Training Program in Terms of Timed Interval

The High Intensity Interval Training Program...	Mean	S.D.	Verbal Interpretation
1. Is a time efficient form of cardio.	4.03	0.726	Effective
2. Can deliver benefits much more quickly than typical cardio workouts.	4.08	0.722	Effective
3. Can burn the same number of calories as with other cardiovascular exercises but in a much shorter time.	4.00	0.882	Effective
4. Requires less time consuming.	4.00	0.850	Effective
5. Can be done every day.	3.78	1.204	Effective
Overall Mean	3.98		Effective

Legend:

- 4.20 – 5.00 *Highly Effective*
- 3.40 – 4.19 *Effective*
- 2.60 – 3.39 *Moderately Effective*
- 1.80 – 2.59 *Less Effective*
- 1.00 – 1.79 *Not at all Effective*

Table 1 presents the level of high intensity interval training program in terms of timed interval. The Grade 12 learners evaluated the effectiveness of the high intensity interval training program in terms of timed interval. They disclosed that the timed interval of the training program was effective for cardio ($M=4.03$, $SD=0.726$) since it delivers benefits quickly that typical cardio workouts ($M=4.08$, $SD=0.722$). The program can burn the same number of calories as with other cardiovascular exercises ($M=4.00$, $SD=0.822$) in less time ($M=4.08$, $SD=0.850$) and can be done every day ($M=3.78$, $SD=1.204$). The overall mean of 3.98 indicates that the high intensity interval training program was effective in terms of timed interval. The computed standard deviations for all items signify similarities in the students' responses.

Table 2. Level of High Intensity Interval Training Program in Terms of Intensity of Workout

The High Intensity Interval Training Program...	Mean	S.D.	Verbal Interpretation
1. Exercises are moderate for the students.	4.36	0.713	Highly effective
2. Exercises are not hard for beginners.	3.58	1.064	Effective
3. Manage to maintain my average maximum heart rate.	4.11	0.809	Effective
4. Set of exercises are easier to perform than other cardio workouts.	4.08	0.829	Effective
5. Sets and repetitions of exercises is not too much for my body.	3.78	0.946	Effective
Overall Mean	3.98		Effective

Legend:

4.20 – 5.00 Highly Effective

3.40 – 4.19 Effective

2.60 – 3.39 Moderately Effective

1.80 – 2.59 Less Effective

1.00 – 1.79 Not at all Effective

Table 2 presents the level of high intensity interval training program in terms of Intensity of Workout. The Grade 12 learners evaluated the effectiveness of the high intensity interval training program in terms of Intensity of Workout. They disclosed that the Intensity of Workout of the training program was Highly Effective in the moderation of exercises for the students ($M=4.36$, $SD=0.713$) since the exercises are not hard for beginners to do ($M=3.58$, $SD=1.064$). The program manages to maintain the students average maximum heart rate ($M=4.11$, $SD=0.809$), the set of exercises are easier to perform than the other cardio workouts ($M=4.08$, $SD=0.829$) and the sets and repetitions of exercises is not too much for their body ($M=3.78$, $SD=0.946$). The high intensity interval training program was beneficial in terms of Intensity of work out, as seen by the overall mean of 3.98. The calculated standard deviations show similarities in the students' replies for all of the items.

Table 3. Level of High Intensity Interval Training Program in Terms of Safety

The High Intensity Interval Training Program...	Mean	S.D.	Verbal Interpretation
1. Is safe to the students.	4.28	0.837	Highly effective
2. Is safe for the beginners in terms of exercising.	4.11	0.936	Effective
3. Is an injury free exercise when doing it.	3.94	0.848	Effective
4. Is safe even in performing it on school.	4.17	0.866	Effective
5. Is safe in my cardiovascular system and muscles.	4.42	0.722	Highly effective
Overall Mean	4.18		Effective

Legend:

- 4.20 – 5.00 *Highly Effective*
 3.40 – 4.19 *Effective*
 2.60 – 3.39 *Moderately Effective*
 1.80 – 2.59 *Less Effective*
 1.00 – 1.79 *Not at all Effective*

Table 3 presents the level of high intensity interval training program in terms of time of safety. The Grade 12 learners evaluated the effectiveness of the high intensity interval training program in terms of safety. They disclosed that the safety of the training program was Highly effective for the safety of the students (M=4.28, SD=0.837) since it is safe for beginners in terms of exercising (M=4.11, SD=0.936). The program is an injury free exercise (M=3.94, SD=0.848), it is safe even in performing in school (M=4.17, SD=0.866) and the training program is Highly effective for the safety of their cardiovascular system and muscles (M=4.42, SD=0.722). The overall mean of 4.18 indicates that the high intensity interval training program was effective in terms of safety. The computed standard deviations for all items signify similarities in the students' responses.

Table 4. Level of Students' Health-Related Fitness

Health-Related Fitness	Frequency	Percentage
<i>Cardiovascular endurance</i>		
Excellent	14	38.89%
Good	11	30.55%
Average	5	13.89%
Poor	4	11.11%
Very Poor	2	5.56%
<i>Muscular strength</i>		
Excellent	3	8.33%
Good	10	27.78%
Average	9	25.00%
Poor	6	16.67%
Very Poor	8	22.22%
<i>Muscular endurance</i>		
Excellent	2	5.56%
Good	6	16.67%
Average	14	38.89%
Poor	13	36.11%
Very Poor	1	2.78%
<i>Body Composition</i>		
Underweight	12	33.33%
Normal Range	24	66.67%
Overweight	0	0.00%
Obese	0	0.00%
Obese Class 1	0	0.00%

The researcher's rubric was utilized to gauge each student's level of cardiovascular endurance. The students' cardiovascular endurance was assessed using the 3-minute step test. There were fourteen (14) students who registered with excellent cardiovascular endurance after the high intensity interval training program (38.89%). The eleven (11) students who registered following the high-intensity interval training program had good cardiovascular endurance (30.55%). Following the high intensity interval training program, five (5) students registered with average cardiovascular endurance (13.89%). The four (4) students with poor cardiovascular endurance (11.11%) and two (2) students with very poor

cardiovascular endurance (5.56%) are both registered after the high intensity interval training program. Some students' poor cardiovascular fitness is a result of their insufficient exercise regimen.

Push-up exercises and the rubric for male and female were used to gauge the students' muscular strength. Following the high intensity interval training program, three (3) students registered with excellent muscular strength (8.33%). There were ten (10) students who registered with good muscular strength after the high intensity interval training program (27.78%). The nine (9) students who registered following the high-intensity interval training program had average muscular strength (25.00%). The six (6) students with poor muscular strength (16.67%) and eight (8) students with very poor muscular strength (22.22%) are both registered after the high intensity interval training program. Students who lack muscular strength may be affected by medical issues, heredity, malnutrition, and a lack of physical activity.

Plank exercises and the researcher's rubrics were utilized to gauge the students' level of muscular endurance. There were two (2) students who registered with excellent muscular endurance after the high intensity interval training program (5.56%). The six (6) students who registered following the high-intensity interval training program had good muscular endurance (16.67%). Following the high intensity interval training program, fourteen (14) students registered with average muscular endurance (38.89%). The thirteen (13) students with poor muscular endurance (36.11%) and one (1) student with very poor muscular endurance (2.78%) are both registered after the high intensity interval training program. Students who have poor muscular endurance may lack proper muscle development, exercise, and endurance training. The body composition of student's determined by using the Body Mass Index used in the Physical Fitness Test. It establishes whether a student is underweight, normal weight, overweight, obese, or in class one obese. Following the high intensity interval training program, twelve (12) students are registered underweight (33.33%). There were twenty-four (24) students who registered normal ranged after the high intensity interval training program (66.67%). After completing the high intensity interval training program, no students are listed as overweight, obese, or obese 1. Underweight students frequently do not consume enough calories to maintain their weight. They frequently also have nutritional deficiencies.

Table 5. Level of Students' Attitude in Physical Education with Regard to Interest

With the help of HIIT program ...	Mean	S.D.	Verbal Interpretation
1. I like to attend PE classes	4.42	0.640	Very high
2. I think that PE class is more important than other subjects	3.42	0.795	High
3. I like to show what I know in P.E class.	4.08	0.759	High
4. I've learnt a lot in P.E class.	4.42	0.795	Very high
5. It makes me feel that P.E is the most interesting school subject.	4.03	0.957	High
Overall Mean	4.07		High

Legend:

4.20 – 5.00 Very High

3.40 – 4.19 High

2.60 – 3.39 Moderately High

1.80 – 2.59 Low

1.00 – 1.79 Very Low

Table 5 presents the level of students' attitude in physical education regarding interest. The Grade 12 learners evaluated the level of students' attitude in physical education regarding interest towards the subject. Results revealed that the students' level of enthusiasm in attending PE classes was very high

($M=4.42$, $SD=0.640$) They disclosed that the level of interest of the students was high for the importance of PE classes than the other subjects ($M=3.42$, $SD=0.795$). The level of their attitude when it comes to showing their knowledge in P.E is high ($M=4.08$, $SD=0.759$) When it comes to the effective learning in P.E class they rated it as very high ($M=4.42$, $SD=0.795$) and they regarded physical education as being the most exciting subject in school and rated it as high ($M=4.03$, $SD=0.957$). The overall mean of 4.07 indicates that the level of students' attitude in Physical Education was high in terms of Interest towards the subject. The computed standard deviations for all items signify similarities in the students' responses.

Table 6. Level of Students' Attitude in Physical Education with Regard to Satisfaction

With the help of HIIT program ...	Mean	S.D.	Verbal Interpretation
1. I like to have more P.E classes weekly.	4.00	0.816	High
2. I feel satisfied while exercising at P.E class.	3.97	0.763	High
3. I like when P.E teacher assigns us some harder exercises.	3.58	0.795	High
4. I like to be in P.E class because we get on well there.	4.17	0.726	High
5. I am enthusiastic to learn new things.	4.17	0.687	High
Overall Mean	3.98		High

Legend:

4.20 – 5.00 Very High

3.40 – 4.19 High

2.60 – 3.39 Moderately High

1.80 – 2.59 Low

1.00 – 1.79 Very Low

Table 6 presents the level of students' attitude in physical education regarding satisfaction. The Grade 12 learners evaluated the level of students' attitude in physical education regarding to satisfaction. Findings showed that students had high levels of having more P.E Classes each week ($M=4.00$, $SD=0.816$) They disclosed that the level of satisfaction of the students was high for the satisfaction of exercising during P.E classes ($M=3.97$, $SD=0.763$). Their level of satisfaction with performing more difficult exercises in P.E is high ($M=3.58$, $SD=0.795$) When it comes to socializing during PE classes, they rated it as high ($M=4.17$, $SD=0.726$) and the level of enthusiasm in learning new things in PE classes is high ($M=4.17$, $SD=0.687$).

The overall mean of 3.98 indicates that the level of students' attitude in Physical Education was high in terms of satisfaction. The computed standard deviations for all items signify similarities in the students' responses.

Table 7. Level of Students' Attitude in Physical Education with Regard to Comfort

With the help of HIIT program ...	Mean	S.D.	Verbal Interpretation
1. I feel comfortable during P.E class relating to my perceptions about the PE teacher.	4.14	0.787	High
2. I conquer my performance anxiety during P.E class.	4.14	0.713	High
3. I feel comfortable doing the exercises.	4.00	0.816	High
4. I am active in P.E class.	4.06	0.743	High
5. I feel safe in P.E class.	3.83	0.957	High
Overall Mean	4.03		High

Legend:

4.20 – 5.00 Very High

3.40 – 4.19 High

2.60 – 3.39 Moderately High

1.80 – 2.59 Low
1.00 – 1.79 Very Low

Table 7 presents the level of students’ attitude in physical education regarding comfort. The Grade 12 learners evaluated the level of students’ attitude in physical education regarding to comfort. Results revealed that the students' level of comfortable during P. E class relating to their perceptions about the P. E teacher was high (M=4.14, SD=0.787). Findings showed that students had high levels of conquering their performance anxiety during P.E classes (M=4.14, SD=0.713) They stated that the students' degree of comfort for performing the activity was high. (M=4.00, SD=0.816). Their level of activeness in P.E classes is high (M=4.06, SD=0.743) and students' P.E. class is safe and rated it as high (M=3.83, SD=0.957). The overall mean of 4.03 indicates that the level of students’ attitude in Physical Education was high in terms of comfort. The computed standard deviations for all items signify similarities in the students' responses.

Table 8. Relationship between the High Intensity Interval Training Program and the Students' Health-Related Fitness

Health-Related Fitness	Timed Interval				Intensity of Workout				Safety			
	r-value	p-value	Degree	Analysis	r-value	p-value	Degree	Analysis	r-value	p-value	Degree	Analysis
Cardiovascular Endurance	0.403	0.042	M	S	0.185	0.091	VW	NS	0.364	0.050	W	S
Muscular Endurance	0.342	0.049	W	NS	0.155	0.109	VW	NS	0.178	0.095	VW	NS
Muscular Strength	0.144	0.118	VW	NS	0.185	0.091	VW	NS	0.158	0.107	VW	NS
Body Composition	0.331	0.050	W	S	0.348	0.050	W	S	0.237	0.071	W	NS

Degree of Correlation:

- ±0.80 – ±1.00 *Very strong (VS)*
- ±0.60 – ±0.79 *Strong (S)*
- ±0.40 – ±0.59 *Moderate(M)*
- ±0.20 – ±0.39 *Weak (W)*
- ±0.00 – ±0.19 *Very weak (VW)*

The students' cardiovascular endurance measured after taking the 3-minute step test was found to be significantly correlated to the high intensity interval program's timed interval (r=0.403, p=0.042) and safety (r=0.364, p=0.050). The activities performed in a high intensity interval training program are time effective and can burn the same number of calories as other cardiovascular exercises in a short amount of time, there is a substantial association between cardiovascular endurance and timed interval training. However, there is no significant relationship with intensity of workout and the students' cardiovascular endurance. The program's exercise set, and intensity are the same for other sets of cardiovascular

exercises, there was no discernible association between cardiovascular endurance and workout intensity during the observation.

The students' muscular endurance, measured after taking the basic plank, has no significant relationship with the high intensity interval program's timed interval, intensity of workout, and safety. As far as I can see from the curriculum, there is no real correlation between timed intervals and muscle endurance because the students can perform the sets of exercises every day at home, and they can do it easily, and I don't believe their muscular endurance has changed.

The students' muscular strength, measured after taking the push up, has no significant relationship with the high intensity interval program's timed interval, intensity of workout, and safety. As there was no change in the students' physical appearance and they did not become stronger while participating in other activities required in physical education classes, I concluded that there was no substantial correlation between the timed interval, workout intensity, and safety.

The students' body composition has a significant relationship with the high intensity interval training program's timed interval ($r=0.331$, $p=0.050$) and intensity of workout ($r=0.348$, $p=0.050$). The fact that the student body is changed in a short amount of time and that the workouts are tailored to the student's body demonstrates the importance of the high-intensity interval training program.

Table 9. Relationship between the High Intensity Interval Training Program and the Students' Attitude in Physical Education

Students' Attitude	Timed Interval				Intensity of Workout				Safety			
	r-value	p-value	Degree	Analysis	r-value	p-value	Degree	Analysis	r-value	p-value	Degree	Analysis
Interest	0.188	0.090	VW	NS	0.203	0.083	W	NS	0.347	0.050	W	S
Satisfaction	0.261	0.064	W	NS	0.168	0.108	VW	NS	0.172	0.098	VW	NS
Comfort	0.324	0.050	W	S	0.202	0.084	W	NS	0.165	0.102	VW	NS

Degree of Correlation:

- $\pm 0.80 - \pm 1.00$ Very strong (VS)
- $\pm 0.60 - \pm 0.79$ Strong (S)
- $\pm 0.40 - \pm 0.59$ Moderate (M)
- $\pm 0.20 - \pm 0.39$ Weak (W)
- $\pm 0.00 - \pm 0.19$ Very weak (VW)

The students' interest measured after answering the checklist questionnaire was found to be significantly correlated to the high intensity interval program's safety ($r=0.347$, $p=0.050$). The activities utilized in the high intensity interval training program are not too demanding on the body, they help students feel secure during physical education courses.

The students' satisfaction measured after answering the checklist questionnaire was found to be not significantly correlated to the high intensity interval program's timed interval, intensity of workout and safety. According to the results of the checklist that the students completed, the satisfaction of the students with the high intensity interval training program's timed interval, intensity of workout, and safety is not very high because they did not live up to the program's expectations regarding having more physical education classes each day and also the satisfaction of performing the exercises required in said program.

The students' comfort measured after answering the checklist questionnaire was found to be significantly correlated to the high intensity interval program's timed interval ($r=0.324$, $p=0.050$). They find the training program to be less time-consuming and less strenuous, which makes them more at ease during timed intervals. As a result, they like performing in physical education classes. However, there is

no significant relationship with intensity of workout, safety, and the students' comfort. I noticed that the students were struggling with the high-intensity interval training program's safety and intensity. At times, they did not feel secure performing the sets of exercises or at ease doing so because they were lying on the ground.

CONCLUSION

The High Intensity Interval Training Program is effective in terms of timed intervals, workout intensity, and safety. Following the high intensity interval training program, fourteen (14) students registered with excellent cardiovascular endurance. The eleven (11) students who signed up after the program of high-intensity interval training showed good cardiovascular endurance. Five (5) students registered after completing the high intensity interval training program with average cardiovascular endurance. the two (2) students with very poor cardiovascular endurance and the four (4) students with poor cardiovascular endurance. The students' muscular strength was evaluated using push-up drills and the male and female rubric. Three (3) students registered after completing the high-intensity interval training program and had excellent muscular strength. Following the high intensity interval training program, ten (10) students registered with good muscular strength. The average muscle strength was present among the nine (9) students who registered after the high-intensity interval training program. Following the high intensity interval training program, the eight (8) students with extremely poor physical strength and the six (6) students with poor muscular strength are both recorded. The researcher's rubrics and plank exercises were used to assess the pupils' level of muscular endurance. Following the high intensity interval training program, two (2) students registered with excellent muscular endurance. The six (6) students who signed up after the program of high-intensity interval training had good muscular endurance. Fourteen (14) students with average muscular endurance registered after the high intensity interval training program. Following the high intensity interval training program, the thirteen (13) students with poor muscular endurance and the one (1) student with very poor muscular endurance are both registered. Twelve (12) students are identified as underweight after completing the high intensity interval training program. After the high intensity interval training program, 24 students who registered in the normal ranges. No students are listed as overweight, obese, or obese 1 after finishing the high intensity interval training program. Students in grade 12 have a positive attitude toward physical education, with high levels of interest, satisfaction, and comfort. There is no significant relationship between High Intensity Interval Training Program and health related fitness of the Grade 12 students. There is no significant relationship between High Intensity Interval Training Program and attitude in P.E of the Grade 12 students. In consequence of the above – mentioned list, the researcher concludes that the hypotheses of this research are partially supported by the findings.

RECOMMENDATIONS

1. The High Intensity Interval Training Program may use activities that are not too harmful for the students if they don't feel comfortable executing the set of exercises. Fresh sets of exercises that the students are unfamiliar with might be used to pique their attention in physical education lessons.
2. College students should adopt the High Intensity Interval Training Program since their physical makeup makes it easier for them to complete the program's exercise sets. The workouts are simple for them to complete, and they are appropriate for college students participating in the Path Fit program.
3. The author advises next education scholars to do a similar investigation into the important connections between college students and high intensity interval training in order to obtain more trustworthy outcomes. Employ the same exam and High Intensity Interval Training program to gauge the students' level of fitness for health-related activities. Examine how these factors affect the connection between

college students' attitudes, health-related fitness, and high-intensity interval training programs. Also, enlarge the sample size of responders to get more solid and trustworthy data.

ACKNOWLEDGEMENTS

His special someone, Joana May C. Alvarez, for making him always inspired and motivated to finish the study, for all the patience and understanding to finish the study

Benny B. Juacalla, PhD., thesis adviser, for his incomparable suggestion assistance, for giving his precious time and effort, for giving valuable suggestions, ideas, comments, untiring professional guidance and in-depth analysis of the study;

Her beloved parents: Maruja R. Gatchalian and Don Christian G. Ajunan, for the love, inspiration, guidance and support both financially and morally, this would not have been possible without their support, unconditional love, financial support and not giving up on him.

REFERENCES

- Biddle, J. H. (2015). International Journal of Behavioral Nutrition and Physical Activity. High-Intensity Interval Exercise Training for Public Health: A Big HIT or Shall We HIT It on the Head? <https://doi.org/10.1186/s12966-015-0254-9>
- (2023). Twinkl.com.ph. <https://www.twinkl.com.ph/teaching-wiki/time-interval#:~:text=A%20time%20interval%20is%20the>
- Ghosh, S. (2021). The influence of information technology on the implementation of the International Safety Management (ISM) Code: A shift from paper-based to paperless ships. Maritime Technology and Research. <https://doi.org/10.33175/mtr.2021.249024>
- Chen, A., & Wang, Y. (2017). The Role of Interest in Physical Education: A Review of Research Evidence. Journal of Teaching in Physical Education, 36(3), 313–322. <https://doi.org/10.1123/jtpe.2017-0033>
- Rojó-Ramos, J., González-Becerra, M. J., Gómez-Paniagua, S., & Adsuar, J. C. (2022). Satisfaction with Physical Activity among Students in the Last Cycle of Primary Education in Extremadura. International Journal of Environmental Research and Public Health, 19(11), 6702. <https://doi.org/10.3390/ijerph19116702>
- Wess P., (2017) , Spearman Rank Correlation (V1.0.3) in Free Statistics Software (v1.2.1) , Office for Research Development and Education, URL https://www.wessa.net/rwasp_spearman.wasp/
- Brad, R. (2013). High-Intensity Interval Training Efficient, Effective, and a Fun Way to Exercise. ACSM's Health & Fitness Journal. <https://doi.org/10.1249/FIT.0b013e31828cb21c>
- Fajrin, F. (2018). Effects of High Intensity Interval Training on Increasing Explosive Power, Speed, and Agility. <https://iopscience.iop.org/article/10.1088/1742-6596/947/1/012045/pdf>
- Engel, F. A. (2018). SYSTEMATIC REVIEW. High-Intensity Interval Training Performed by Young Athletes: A Systematic Review and Meta-Analysis. <https://doi.org/10.3389/fphys.2018.01012>
- Cherry, K. (2021). Attitudes and Behavior in Psychology. Verywell Mind. <https://www.verywellmind.com/attitudes-how-they-form-change-shape-behavior-2795897#:~:text=In%20psychology%2C%20an%20attitude%20refers,enduring%2C%20they%20can%20also%20change.>