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Original Article

THE IMPACT OF COVID-19 PANDEMIC ISOLATION ON THE PERFORMANCE OF TRACK AND FIELD ATHLETES: A COMPARATIVE STUDY OF 100M SPRINT

O IMPACTO DO ISOLAMENTO PANDÊMICO DO COVID-19 NO DESEMPENHO DE ATLETAS DE ATLETISMO: UM ESTUDO COMPARATIVO DO SPRINT DE 100M

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RESUMO

A pandemia de COVID-19 obrigou o fechamento de escolas e a interrupção de atividades relacionadas com o desporto, diminuindo envolvimento dos atletas com o treino desportivo e subsequentes efeitos negativos no seu desempenho. Esta pesquisa emprega uma abordagem experimental para investigar a influência do isolamento induzido pela pandemia no desempenho de atletas de atletismo na corrida de 100m. O estudo se concentra em uma amostra de 60 atletas dos níveis fundamental, médio e superior em Albay, Filipinas. Para avaliar o desempenho, os treinadores forneceram dados sobre o melhor tempo dos atletas em provas de 100m rasos em 2019. Além disso, foram realizados dois testes de *sprint* com o auxílio dos treinadores para determinar o melhor tempo atual, com o menor tempo registrado. Testes t de amostras pareadas foram empregados para analisar a variação nos tempos de *sprint* de 100m em diferentes faixas etárias e sexo, comparando os períodos de isolamento pré-pandêmico e pós-pandêmico. A análise estatística revelou uma diferença significativa entre as duas medidas de desempenho, conforme indicado pelos valores-p calculados consistentemente abaixo do nível de significância predeterminado de 0,05. Para contrariar este declínio, recomenda-se a implementação de ambientes de treino intensivos e seguros, que facilitem a recuperação gradual do desempenho dos atletas sem comprometer a sua saúde e bem-estar.

Palavras-chave: Atletismo. Corrida. Pandemia. Desempenho. Diferença.

ABSTRACT

The COVID-19 pandemic necessitated the suspension of schools and sports-related activities, leading to a disruption in athletes' engagement with sports training and subsequent negative effects on their performance. This research employs an experimental approach to investigate the influence of pandemic-induced isolation on the performance of track and field athletes in the 100m sprint. The study focuses on a sample of 60 athletes from elementary, secondary, and tertiary levels in Albay, Philippines. To assess performance, coaches provided data on the athletes' best time in the 100m sprint from 2019. Additionally, two sprint tests were conducted with the assistance of coaches to determine the current best time, with the lowest time recorded. Paired sample t-tests were employed to analyze the variation in 100m sprint times across different age groups, and sex comparing pre-pandemic and post-pandemic isolation periods. The statistical analysis revealed a significant difference between the two performance measures, as indicated by computed p-values consistently below the predetermined significance level of 0.05. To counteract this decline, the implementation of intensive and safe training environments is recommended, which would facilitate the gradual restoration of athletes' performance without compromising their health and well-being.

Keywords: Track and Field. Sprint. Pandemic. Performance. Difference

Introduction

The COVID-19 pandemic has had a profound impact on sporting events and athletes worldwide[1]. In the Philippines, the Department of Education (DepEd) and the Philippine Association of State Universities and Colleges (PASUC) had to postpone or cancel sporting events for nearly three years due to the pandemic. This interruption has deprived athletes at all levels of the opportunity to continue their careers and has posed significant challenges to their performance and training[2].

Lockdowns, travel restrictions, and closures of training facilities have severely limited access to training and coaching, resulting in decreased training volume and intensity for track and field athletes[2,3]. This reduction in training load can negatively affect performance. Moreover, the pandemic has also taken a toll on athletes' mental health, leading to increased stress, anxiety, and depression due to the uncertainties and disruptions caused by the crisis[4,5]. The psychological impact of the pandemic can significantly impact athletes' motivation and overall performance[6].

The decline in training volume and intensity, combined with the psychological effects of the pandemic, has led to a deterioration in the performance of track and field athletes[7]. Competition cancellations have further exacerbated the situation, causing heightened anxiety and decreased motivation, particularly for distance athletes[8]. It is crucial to provide mental health support and implement strategies to mitigate these negative effects on athletes' performance[9].

Notably, sprinters have experienced a decline in performance during the pandemic, with significant decreases observed in shorter events such as the 100m[10]. In countries like the Philippines, where the pandemic's impact has been more prolonged, track athletes have faced additional challenges in maintaining their performance due to the absence of proper training facilities and physical distancing requirements[11,12].

As sporting activities gradually resume, the Department of Education and State Universities and Colleges are taking steps to reintroduce intramural and interschool competitions, ensuring the continuity of sports development in the country. However, it is crucial to assess the impact of the pandemic on track and field sprinters' performance to develop appropriate measures to mitigate its effects. Measuring the change in performance before and after the pandemic can provide valuable insights into the magnitude of the impact and contribute to evidence-based interventions for future pandemics.

Therefore, this study aims to measure the performance of selected track and field sprint athletes in the Philippines by comparing their 100m sprint times before and after the pandemic isolation period. By examining the performance data, this research seeks to contribute to a better understanding of how the pandemic has affected track and field athletes' performance and inform strategies to support their development and recovery.

Methods

Sample

Table 1 shows the distribution of participants according to age groups, categorized into three educational levels: elementary (13-16 years old), secondary (17-20 years old), and tertiary (21-24 years old). The age brackets of the participants were established based on the criteria stipulated in the DepEd Memorandum No. 005, s. 2023 for elementary and secondary levels, and the PASUC National Culture and the Arts Festival and SCUAA National Games Manual of Operation for the tertiary level. The selection of participants in this study was purposive, considering various factors such as age bracket, educational level, and sports appearance. Specifically, 60 participants from the Bicol region, Philippines were recruited, with 20 participants in each educational level and an equal distribution of males and females. To ensure proportional representation of the sample, the study also recruited participants based on age (5 participants per age group) and division (male and female). Additionally, the selection of participants was based on their experience in competing at the provincial, regional, and national levels.

Procedures

In order to determine the effect of the pandemic isolation on the performance of sprint athletes, it is necessary to compare their performance both before and after. Such an analysis is essential to identify any significant changes in performance and to design the necessary intervention or recovery training program. To this end, this study employed a true experimental research design to compare the participants' performance and measure the degree of change resulting from the pandemic isolation. Specifically, the study seeks to investigate whether there is a significant difference between the participants' 100-meter sprints' best time before and after the pandemic. The coaches of the athletes provided their previous records in the 100m sprint at the 2019 provincial game held at the Olympic size oval in Albay Sports Complex. To compare these

records with the current time (after the pandemic), the athletes underwent two sprinting tests at the same sports complex, and their lowest record was collected. The researchers obtained the athletes' current best times with the assistance of their coaches, and data collection commenced only after the participants and coaches had signed the informed consent form. In addition, the researchers received permission from the schools where the athletes were enrolled during the study through a response letter. The sprint test of athletes was conducted on February 2023.

Table 1. Participants Demographic

Profile	Count	Athletes' Category			Total
		Elementary Level	Secondary Level	Tertiary Level	
Age range	13 years old	5	-	-	5
	14 years old	5	-	-	5
	15 years old	5	-	-	5
	16 years old	5	-	-	5
	17 years old	-	5	-	5
	18 years old	-	5	-	5
	19 years old	-	5	-	5
	20 years old	-	5	-	5
	21 years old	-	-	5	5
	22 years old	-	-	5	5
	23 years old	-	-	5	5
	24 years old	-	-	5	5
	Total	20	20	20	60
Division	Male	10	10	10	30
	Female	10	10	10	30
	Total	20	20	20	60
Highest Sports Appearance	National	5	9	13	27
	Regional	12	8	7	27
	City/Provincial	3	3	-	6
	Total	20	20	20	60

Source: author

Statistical analysis

The study used the Statistical Package for Social Sciences (SPSS) v. 28 in quantifying the numerical data. The study calculates the time difference by finding the difference between the means of 2 data sets. Furthermore, the study used paired sample t-test to measure the significant change in athletes' performance according to category.

Results

Table 2 shows the results of the paired sample t-test conducted to evaluate the difference in time for the 100-meter sprint performance of athletes across different age groups, before and after the pandemic-induced isolation period. The test indicates that there exists a statistically significant difference between the two performance measures, as evidenced by the computed p-values which are all less than the pre-determined level of significance of 0.05. For elementary level aged 13 to 16, it shows the following *p*-values: 0.000; 0.006, 0.001, and 0.001 respectively. Furthermore, the secondary-level athletes aged 17 to 20, show the following *p*=values: 0.002, 0.002, 0.004, and 0.010 respectively. While tertiary level athletes aged 21 to 24 reveal *p*-values of: 0.000, 0.001, 0.002 and 0.001 correspondingly.

Table 2. Paired samples t-test for time difference of athletes' performance according to age group

Level	Age Group	N	Time Before		Time After		Time Difference	t	Sig. (2-tailed)
			Mean	Std. Dev.	Mean	Std. Dev.			
Elementary	13	5	14.054	0.656	15.772	0.797	-1.718	-11.486	.000
	14	5	14.332	0.500	15.736	0.251	-1.404	-5.232	.006
	15	5	15.088	1.229	16.268	1.127	-1.180	-8.601	.001
	16	5	15.61	0.938	16.516	1.026	-0.906	-9.273	.001
Secondary	17	5	13.088	0.574	15.256	1.155	-2.168	-6.947	.002
	18	5	13.186	0.336	14.656	0.504	-1.470	-7.078	.002
	19	5	13.724	0.615	14.452	0.493	-0.728	-5.804	.004
	20	5	13.866	0.311	15.22	0.498	-1.354	-4.646	.010
Tertiary	21	5	11.82	0.149	12.776	0.202	-0.956	-10.311	.000
	22	5	12.03	0.218	13.08	0.458	-1.050	-7.990	.001
	23	5	12.68	0.605	13.612	0.562	-0.932	-6.898	.002
	24	5	12.272	0.451	13.128	0.297	-0.856	-9.331	.001

Note: $\alpha = 0.05$
Source: author

The analysis presented in Table 3 demonstrates the outcomes of the paired sample t-test, which was employed to assess the disparity in 100-meter sprint times between male and female athletes before and after the isolation period caused by the COVID-19 pandemic. The results indicate the existence of a statistically significant distinction between the two performance measures. This conclusion is supported by the computed p-values, all of which are below the predetermined significance level of 0.05. Female and male athletes in elementary and tertiary levels received *p*-values of 0.000. While the female secondary athletes received a *p*-value of 0.001 and a *p*-value of 0.000 for males.

Table 3. Paired samples t-test for time difference of athletes' performance according to sex

Level	Sex	N	Time Before		Time After		Time Difference	t	Sig. (2-tailed)
			Mean	Std. Dev.	Mean	Std. Dev.			
Elementary	Female	10	15.451	0.920	16.58	0.815	-1.132	-8.408	.000
	Male	10	14.217	0.811	15.66	0.800	-1.454	-9.822	.000
Secondary	Female	10	13.851	0.438	15.340	0.795	-1.489	-5.140	.001
	Male	10	13.158	0.447	14.559	0.523	-1.401	-8.353	.000
Tertiary	Female	10	12.387	0.568	13.324	0.536	-0.937	-9.152	.000
	Male	10	12.018	0.453	12.989	0.480	-0.971	-20.334	.000

$\alpha = 0.05$

Discussion

The paired sample t-test presented in Tables 2 and 3 shows that there is a significant difference between the participants' time in the 100m sprint before and after the pandemic across different age groups and sex. The computed p-values being less than the level of significance (0.05) indicates that the difference observed is statistically significant and unlikely to have occurred by chance. These findings were consistent with previous research studies that have reported similar results[13]. These findings have important implications for understanding the impact of the pandemic on Filipino athletes' performance in track and field events. The disruption caused by the pandemic, including changes in training regimes, access to training facilities, and competition schedules, may have had a significant impact on athletes' abilities to perform at their highest level. The findings suggest that this impact was significant across different age groups and levels, indicating that the pandemic affected all athletes, not just those at certain levels of competition.

Moreover, the significant difference in performance observed in Table 3 also raises questions about potential differences in the way male and female athletes have been affected by

the pandemic. Several studies have examined the impact of the COVID-19 pandemic on athletes' performance and have reported disparities between male and female athletes[14,15]. This suggests that gender-specific factors may contribute to the differential effects of the pandemic on athletic performance.

The findings of the paired sample t-test also have implications for the future of sports and athletics. As the pandemic continues to impact communities worldwide, sports organizations may need to adopt new strategies to adapt to the changing landscape. Research by Graupensperge et al.,[16] highlights the importance of considering the long-term effects of the pandemic on athletes' physical and mental health. This includes providing adequate support and resources to help athletes recover and regain their optimal performance levels. Furthermore, the results of the paired sample t-test suggest that the pandemic may have had broader implications for sports and athletic performance beyond just the 100m sprint. This underscores the need for comprehensive strategies to address the multifaceted challenges faced by athletes in different sports.

Based on these results, it is recommended that coaches and sports organizations must prioritize the health and safety of athletes while providing them with the necessary resources and support to maintain their performance levels. This may involve developing tailored training programs and routines that account for individual athlete needs and circumstances, as well as exploring innovative approaches to competition that prioritize safety measures and social distancing. Additionally, coaches and sports organizations should pay particular attention to the unique challenges faced by female athletes.

Furthermore, addressing broader societal factors that contribute to disparities in athletic performance is essential. Coaches and sports organizations should advocate for and implement measures to dismantle structural barriers, including socioeconomic disparities and racial inequities, that hinder athletes' opportunities and hinder their potential for success.

Conclusion

The study analyzes the insights of the coaches based on the results. This study is beneficial to future researchers in the field of sports, sports leaders, athletes, and coaches as it may serve as their reference in developing a suitable program for their athletes. Global pandemic lockdowns shut down not just the sports industry but also collapse the global economy, therefore, athletes prioritize their primary needs to survive provided that they live in a developing country. In addition, there is no place to practice and play during the isolation period; athletes and coaches set aside their obligations in sports. Coaches and athletes cannot be blamed since the Philippine government issued strict health protocols such as physical distancing, temporary closures of schools and economic hardship.

In the gradual reopening of sports activities, the coaches and team key officials must secure a safe and effective recovery training program for their athletes. New trends in coaching and sports management should be offered to the coaches to be more effective and update their knowledge related to the new normal of sports. There is a need for the national government especially the Philippines to formulate favorable policies to bring back sports to the country. Insights from the coaches' athletes and key officials are valuable in bringing back the sports in the country.

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