Assessment of the Role and Value of Sports App in After-Class Exercise of Higher Vocational Female Students

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ABSTRACT

This study evaluates the impact of sports apps on after-school exercise for female students in higher vocational colleges, focusing on their physical fitness and physical education behavior. It compares the profile of reference (no app) and experimental (using app) groups before and after the experiment in terms of height and weight. Pretest scores assess physical fitness through BMI, lung-active vital capacity, 50m running results, standing long jump, and a long-distance run (800 meters). Furthermore, the respondents were selected for healthy adult female students. In terms of physical health, the use of physical examination report and ask students' health status. Based on the study's findings, a wellness program using an educational sports app for college students should include personalized workouts, lung capacity exercises, and running and jumping drills. The app should track progress, offer feedback, and provide educational content on fitness and nutrition to enhance engagement and physical fitness. With this, it is recommended to develop a wellness program for college students using an educational sports app with personalized workouts, progress tracking, and tailored interventions. Collaborate with fitness professionals for guidance and support. Emphasize proper technique, rest, and recovery while promoting engagement through interactive features. Monitor progress regularly to ensure continuous improvement.

Keywords: Sports APP, Physical education, and Sports management.

INTRODUCTION

The age of female vocational students is generally about 1 8 years old; this age stage physical development is basically mature. With the growth of age, subcutaneous fat thickening, weight gain, many girls are fat, and muscle strength is weak, especially abdominal muscle, waist and leg muscle strength is poor. At the same time, the physiological changes of the menstrual period of female students in higher vocational colleges directly affect their exercise consciousness and exercise behavior. Due to the "exam-oriented" education in Chinese middle schools for many years, students ignore the physical education and extracurricular physical exercise. In recent years, the physical health test data show that the physical health level of higher vocational girls has been declining, which has also attracted the attention of many scholars. Health has always been a highly important issue, especially when the COVID-19 outbreak in 2020 once again made people respect and awe of life.

In 2018, Xi Jinping, general secretary of the national education conference on school sports put forward "to setup the health first education idea, open the full physical education, help students enjoy fun in physical exercise, enhance physique, sound personality, temper will" requirement 2, but also clear about

the physical quality is the importance of students' all-round development. As countries have issued relevant documents, constantly improve the system of college sports work and students physical exercise, guarantee school sports smoothly, let students master 1~2 sports skills, ensure students an hour a day campus sports activity into effect, really let students "off the network, out of the dormitory, to the playground" to participate in extracurricular physical exercise activities.

At the same time, the motor skills taught in physical education need students to be mastered through a lot of time to practice. In addition to physical education and community classes, physical exercises also need to be extended to the classroom, so that students can truly master skills. In practice, it is found that the sports APP can give full play to the advantages of "Internet +" and improve the timeliness of students' practice after class. With the development of the Internet and the improvement of big data, Yu Zhaohui pointed out in his statistical report (2019) that as of June 2019, the scale of mobile phone users in China reached 847 million, the proportion of mobile Internet users increased from 98.3% in 2018 to 99.1%, and the Internet penetration rate reached 61.2%. As the frontier group of the new ideas of The Times, smart phones have been popularized among college students. Through daily communication, learning, information acquisition, online activities and other forms, smart students have deeply affected the lifestyle of college students. According to the living habits of college students, many developers have developed a sports and fitness APP to meet the needs of college students for extracurricular physical exercise, and they are widely used. Therefore, study the role and value of sports APP for students in extracurricular practice, enhance the enthusiasm of college students 'independent exercise, cultivate lifelong sports awareness, promote the formation of students' good lifestyle and behavior habits, so as to realize the all-round development of students. KEEP, a popular fitness and exercise app in China, was launched in February 2015. It offers a comprehensive range of services, including fitness teaching, running, cycling, dating, fitness diet guidance, and equipment purchases, providing one-stop exercise solutions for its users.

Under the background of national fitness, wearable intelligent devices and sports APP have become an integral part of people's exercise. With the exercise APP realizing the visual sharing function of exercise data, the exercise APP is increasingly popular and loved by people, and the exercise APP has brought a great impact on people's daily exercise. At the same time, with the increasing influence of sports APP, college students in higher vocational colleges begin to use sports APP voluntarily, and some higher vocational colleges gradually integrate such information technology with physical education to improve the physical health problems of college students. Through consulting relevant literature, it is found that the current research objects on the application of sports APP in schools are mainly in primary and secondary schools and undergraduate colleges, while there are fewer related studies on higher vocational colleges and fewer studies specifically on female students in higher vocational colleges. Training priorities, academic year time, sports facilities are many different from those of undergraduate institutions. Therefore, when carrying out the research for college students, we should adapt measures to local conditions, and distinguish the higher vocational college students and the ordinary college students from the undergraduate students in the research subject. Compared with undergraduate students, female students in higher vocational colleges should enter the society earlier and faster. Only good physical quality can be better competent for the work. Therefore, it is urgent to strengthen the physical exercise of female students in higher vocational colleges and improve the physical quality of female students in higher vocational colleges. Therefore, this paper is based on the conclusion of the study of scholars at

home and abroad, further to sports APP in higher vocational colleges female students using the effect of extracurricular physical exercise, analysis of the sports APP of higher vocational female students' physical fitness and sports behavior influence, improve the understanding of higher vocational female students for sports APP, encourage vocational female students using sports APP for extracurricular physical exercise, cultivate good exercise habits, for innovative sports teaching methods in higher vocational colleges.

Statement of the Problem

This study mainly evaluates the role and value of sports APP in after-school exercise for female students in higher vocational colleges. Study on whether the application of sports APP in extracurricular physical exercise in higher vocational colleges affects the physical fitness and physical education behavior of female students in higher vocational colleges.

1. **What is the pretest score on the physical fitness of the control and experimental group before using the app in terms of:**
   1.1. BMI
   1.2. Lung-active vital capacity
   1.3. 50m running result
   1.4. Standing long jump
   1.5. Long-distance run (800 meter run for female)
2. Is there a significant difference in the pretest scores of the control and experimental group before using the app?
3. What is the post test scores of the control group (using the old process of measuring the physical fitness and post test scores of the experimental group using the app?
4. Is there a significant difference in the post test score of the control group (using the manual measurement) and experimental group using the app?
5. Is there a significant difference in the pretest and post-test of the control group and the pretest and post-test of the experimental group?
6. Based from the findings of the study, what wellness program can be proposed with the utilization of educational app?

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATION

This section provides a concise summary of the study's conclusions and findings, which were carefully crafted after a careful analysis of the research questions. In addition, preliminary suggestions that align with the results are showcased to direct forthcoming measures.

Pretest Scores on the Physical Fitness of the control Group before Conducting the Experiment.

As to Body Mass Index (BMI). Majority of students fall within the "Normal Weight" category based on their Body Mass Index (BMI). Among the 40 students, the "Normal Weight" category appears most frequently, indicating that the BMI values of a significant portion of the students fall within the healthy range. Specifically, 27 out of the 40 students have BMI values corresponding to "Normal Weight."

As to Lung Active Vital Capacity. The mean value of lung active vital capacity for the given sample is 2893 ml or 2.893 liters, which falls below the normal range. It is noted that out of the 40 students measured, 26 out of 40, have Lung Active Vital Capacity below the normal range.

Based on the physical health scoring criteria in China, the lung active vital capacity measurements of the students exhibit a range of scores and categories. Among the 40 students assessed for lung active vital capacity, a total of 12 students fall into the "Excellent" category, achieving scores ranging from 90 to 100.Meanwhile, 22 students fall into the "Pass" category, scoring between 62 and 79. Lastly, six student falls into the "Good" category, with a score of 81.

As to 50m Running Result. The mean value of the 50-metersprint times for the given sample is 9.47 seconds, indicating that on average, the students in this group require further improvement in their sprinting abilities. Upon closer examination of the data, it's evident that the majority of the recorded times fall within the category of "Needs Work."

Based on the physical health scoring criteria in China for the 50-meter sprint, the students' performances exhibit a range of scores and categories. Specifically, 35 students fall into this category. Four students achieved a score indicative of "Fail," with a time of 11.2 seconds, while one student's performance was classified as "Good" with a score of 80.

As to Standing Long Jump. The mean value of the standing long jump distances for the given sample is 1.66 meters, indicating that, on average, the students in this group performed at an excellent level in this activity.

The standing long jump performances of the students, evaluated against the Physical Health Scoring Criteria in China, demonstrate a varied range of scores. With a mean score of 70, categorizing the overall performance as "Pass," the majority of the 40 students have met the acceptable standard. Specifically, 36 students have passed the assessment. Moreover, a notable number of students, totaling 4, have achieved scores categorizing their performance as "Good," with scores ranging from 81 to 87, demonstrating commendable jumping abilities. However, one student's performance resulted in a "Fail," falling below the acceptable threshold with a score of 48.

As to Long Distance Run. The mean value of the long-distance run times for the given sample is 4.21 minutes, indicating that, on average, the students in this group performed at a poor level in this activity. Upon analyzing the data, it's evident that the majority of the recorded times fall within the category of "Poor." Out of the 40 students measured, all of them achieved long-distance run times categorized as "Poor."

In assessing the long-distance run performances of the students based the Physical Health Scoring Criteria in China, there's a discernible range of scores. The mean score of 65 designates the overall performance as "Pass." Among the 40 students, the majority, totaling 32, have successfully passed the assessment. However, a notable portion of students, comprising 8 students, have fallen short, resulting in a "Fail" categorization. These students obtained scores ranging from 10 to 42, indicating a need for improvement in their long-distance running abilities.

Pretest Scores on the Physical Fitness of the Experimental Group before Conducting the Experiment.

As to Body Mass Index (BMI). The mean value of the Body Mass Index (BMI) for the given sample is 21.09, indicating that, on average, the students in this group fall within the normal weight range. Upon examining the data, it's evident that the majority of the recorded BMIs correspond to the category of "Normal Weight." It is noted that out of the 40 students measured, a significant majority, 22 students, have BMIs (18.9-23.9) categorized as "Normal Weight." Additionally, twelve students are categorized as "Underweight" with BMI ranging from 16-18.2 while only three students fall into the "Overweight"

category which has BMI ranging from 24.7-25.5 and "Obesity" which has BMI which ranges from 28.2-29.1.

As to Lung Active Capacity. The mean value of lung active vital capacity for the given sample is 2923.8 ml or 2.924 liters, indicating that, on average, the students in this group have lung capacities below the normal range. Upon analyzing the data, it's evident that the majority of the recorded values fall within the category of "Below Normal."

Based on the physical health scoring criteria in China for lung active vital capacity, the students' measurements exhibit a range of scores and categories. With a mean lung active vital capacity of 2.924 liters, falling within the "Pass" category with a score of 78, the majority of the 40 students evaluated demonstrate satisfactory lung function. Among them, 36 students fall into the "Pass" category, achieving scores ranging from 62 to 87, indicating acceptable physical health according to Chinese standards. Notably, four students achieve scores categorizing their lung function as "Excellent," with scores ranging from 95 to 100.

As to 50m Running Result. The mean value of the 50-meter running results for the given sample is 9.61 seconds, indicating that, on average, the students in this group require further improvement in their sprinting abilities. It is noted that out of the 40 students measured, a substantial portion, 23 students, have sprint times categorized as "Needs Work."

Based on the physical health scoring criteria in China for the 50-meter sprint, the students' running results exhibit varying scores and categories. The mean time taken to complete the sprint is 9.61 seconds, categorizing the overall performance as "Pass" with a score of 77. Among the 40 students assessed, the majority, totaling 33, achieved scores that categorize their performances as "Pass," with scores ranging from 39 to 81 while three achieved "Good" with a score of 80-85. Additionally, there are four students classified as "Fail," indicating their times fell below the acceptable threshold, with scores ranging from 20 to 49.

As to Standing Long Jump. The mean value of the standing long jump distances for the given sample is 1.62 meters, indicating that, on average, the students in this group performed at a "Good" level in this activity. It is noted that out of the 40 students measured, a significant majority, 28 students, achieved standing long jump distances categorized as "Excellent." This indicates a prevalent high level of performance in this activity within the sample. Additionally, eleven students achieved distances categorized as "Good," meaning a solid performance level, while only one student achieved an "Average" rating.

Based on the physical health scoring criteria in China for the standing long jump, the students' performances vary in scores and categories. The mean distance jumped is 1.62 meters, categorizing the overall performance as "Pass" with a score of 67. Among the 40 students assessed, the majority, totaling 35, achieved scores that categorize their performances as "Pass," with scores ranging from 60 to 86. Notably, one student achieved an "Excellent" score with a distance of 1.95 meters, showcasing exceptional jumping ability while one categorized to "Good" with a score of 86. Additionally, there are three students classified as "Fail," indicating their jump distances fell below the acceptable threshold, with scores ranging from 30 to 39.

As to Long Distance Run. The mean value of the long-distance run times for the given sample is 4.20 minutes, indicating that, on average, the students in this group performed at a "Poor" level in this activity.

Based on the physical health scoring criteria in China for the long-distance run, the students' performances exhibit varied scores and categories. The mean time taken to complete the run is 4.20 minutes, categorizing the overall performance as "Pass" with a score of 66. Among the 40 students assessed, the majority, totaling 27, achieved scores that categorize their performances as "Pass," with scores ranging from 61 to 89. Notably, one student achieved an "Excellent" score, completing the run in 3.38 minutes. Additionally, two students achieved "Good" scores with times of 3.42 and 3.44 minutes, respectively. However, it's noteworthy that 10 students failed to meet the passing criteria, obtaining scores ranging from 10 to 59.

Significant Difference Between Refence Group and Experimental Group

The statistical analysis of the physical fitness measures indicates several key findings. In terms of Body Mass Index (BMI), there was no significant difference observed between the control (Mean = 21.59, SD = 3.79) and experimental (Mean = 21.09, SD = 3.21) groups, with t-value = 0.337 and significance value = 0.563, meaning that any variations in BMI between the groups were not statistically significant. Similarly, for Lung Vital Capacity, 50m.

Running Result, and Long-Distance Run, no significant differences were found between the control and experimental groups, indicating that the mean values for these measures did not significantly differ between the two groups. However, in the case of Standing Long Jump, there was a statistically significant difference between the control (Mean = 1.66, SD = 0.12) and experimental (Mean = 1.62, SD= 0.12) groups, with at-value of 0.021 and significance value of 0.884.

Post Test Scores on the Physical Fitness of the control/ Control Group During the Experiment (After 8 weeks)

As to Body Mass Index (BMI). The mean value of the Body Mass Index (BMI) for the given sample is 21.48, indicating that, on average, the students in this group fall within the normal weight range. Upon analyzing the data, it's evident that the majority of the recorded BMIs correspond to the category of "Normal Weight." It is observed that out of the 40 students measured, 29 have BMIs categorized as "Normal Weight."

As to Lung Active Vital Capacity. The mean value of lung active vital capacity for the given sample is 2913.7 ml or 2.914 liters, indicating that, on average, the students in this group have lung capacities below the normal range. It is noted that out of the 40 students measured, 24 have lung capacities categorized as "Below Normal," while only 16 falls within the "Normal" range.

Based on the physical health scoring criteria in China for lung active vital capacity, the students' performances vary in scores and categories. The mean lung active vital capacity is approximately 2913.7 milliliters, equivalent to 2.914 liters, categorizing the overall performance as "Pass" with a score of 78. Among the 40 students assessed, the majority, totaling 24, achieved scores that categorize their lung capacities as "Pass," with scores ranging from 62 to 100. Notably, seven students achieved "Excellent" scores, demonstrating exceptional lung capacity, with scores ranging from 90 to 100. Additionally, there are nine students with scores in the "Good" range, falling between 80 and 89.

As to 50m Running Result. The mean value of the 50-meter sprint times for the given sample is 9.41 seconds, indicating that, on average, the students in this group require further improvement in their sprinting abilities. It is observed that out of the 40 students measured, 28 have 50-meter sprint times categorized as "Needs Work," while only two students achieved "Good" ratings, and ten students were categorized as "Below Average."

Based on the physical health scoring criteria in China for the 50m sprint, the students' performances varied across scores and categories. The mean score for the sprint is approximately 9.41 seconds, categorizing the overall performance as "Pass" with a score of 69. Among the 40 students evaluated, the majority, totaling 36, achieved scores that categorize their sprint performances as "Pass," with scores ranging from 60 to 80. Notably, one student achieved a score in the "Good" range, indicating exceptional sprint speed. Additionally, there are three students with scores resulting in "Fail," indicating that their sprint times exceeded the acceptable threshold according to Chinese standards.

As to Standing Long Jump. The mean value of the standing long jump distances for the given sample is 1.68 meters, indicating that, on average, the students in this group performed at an "Excellent" level in this activity. Upon analyzing the data, it's evident that the majority of the recorded distances fall within the category of "Excellent." Additionally, it is noted that out of the 40 students measured, 27 achieved standing long jump distances categorized as "Excellent," while the remaining thirteen students achieved distances categorized as "Good" and one in "Average."

Based on the physical health scoring criteria in China for the standing long jump, the students demonstrated varying levels of performance. The meanscore for the standing long jump is approximately 1.68 meters, categorizing the overall performance as "Pass" with a score of 71. Among the 40 students assessed, the majority, totaling 32, achieved scores indicating a successful jump, with distances ranging from 60 to 90 centimeters. Notably, five students achieved scores in the "Good", one for "Excellent" ranges, indicating above-average to exceptional jumping abilities. Additionally, one student fell below the acceptable threshold, scoring in the "Fail" range, implying room for improvement in their jumping performance.

As to Long Distance Run.The mean value of the long-distance run times for the given sample is 4.18 minutes, indicating that, on average, the students in this group performed at a "Poor" level in this activity. Moreover, it is observed that out of the 40 students measured, 38 achieved long-distance run times categorized as "Poor" and two as "below average".

Based on the physical health scoring criteria in China reveals a mixed performance among the students. With a mean score of approximately 4.18 minutes, categorizing the overall performance as "Pass" with a score of 67, the students demonstrated varying levels of endurance and cardiovascular fitness. Out of the 40 students assessed, 31 students successfully completed the run within the acceptable time frame, meeting the criteria for passing the test. However, 7 students failed to meet the standard, scoring in the "Fail" range, suggesting a need for improvement in their endurance levels. Notably, there are two achieving a score in the "Good" range, falling significantly below the acceptable threshold.

Post Test Scores on the Physical Fitness of the Experimental Group During the Experiment (After 8 weeks)

As to Body Mass Index (BMI). The mean Body Mass Index (BMI) of the students in the sample is 20.46, which falls within the "Normal Weight" range according to standard BMI classifications. This indicates that, on average, the students have a healthy weight relative to their height. It is observed that the majority of students (28 out of 40), have BMIs within the "Normal Weight" range, 9 with underweight and 3 with overweight.

As to Lung Active Vital Capacity. The average Lung Active Vital Capacity among the students is calculated to be approximately 3.2786 liters, indicating a "Normal" interpretation based on standard classifications. Additionally, it is evident that the majority of students (32 out of 40) exhibit lung

capacities classified as "Normal." While the mean LAVC implies overall healthy lung function, it's essential to address the few instances where lung capacities are categorized as "Below Normal" (8 out of 40 students).

Based on the physical health scoring criteria in China for lung active vital capacity, the students' performances show significant variation in scores and categories. The mean lung active vital capacity is approximately 3278.65 milliliters, equivalent to 3.2786 liters, categorizing the overall performance as "Excellent" with a score of 90. Among the 40 students evaluated, a substantial majority achieved scores categorizing their lung capacities as "Excellent," with scores ranging from 90 to 100.Notably, 19 out of 40 students achieved the highest possible score of 100, demonstrating exceptional lung capacity. Additionally, there are 14 students with scores in the "Good" range, falling between 80 and 89, and 7 students categorized as "Pass," with scores ranging from 70 to 79.

As to 50m Running Result. The mean 50m sprint time among the students is 9.13 seconds. Based on the frequency distribution of interpretations, the majority of students have been classified as "Below Average" in terms of their running performance, with 21 out of 40 students falling into this category. There are 10 students classified as "Needs Work." Additionally, there are a six of students who have been labeled as "Average and "Good" has 2 students and one has "Excellent," meaning relatively strong performance in the 50m sprint among these students.

Based on the physical health scoring criteria in China for the 50m running result, the students' performances vary, with a mean score of 9.13 out of 10, categorizing the overall performance as "Pass" with a score of 63. Among the 40 students evaluated, the majority achieved scores categorizing their running abilities as "Pass" which includes 38 students, meeting or exceeding the minimum criteria for physical health. Notably, one student achieved an "Excellent" score of 91, demonstrating exceptional running speed and endurance and "one categorized as "Good" with a score of 81. The majority of students demonstrated consistent performance, with scores ranging from 60 to 79, indicating a passing level of physical fitness in terms of running ability according to Chinese standards.

As to Standing Long Jump. The mean standing long jump distance among the students is 1.776 meters. Based on the frequency distribution of interpretations, 35 students have been consistently classified as "Excellent" in their standing long jump performance and 5 students are interpreted as "Good" This indicates a remarkable level of achievement across the board, with every student demonstrating exceptional power, technique, and explosiveness in their jumps.

Based on the physical health scoring criteria in China for the standing long jump, the students' performances varied, with a mean score of 1.776 meters, categorizing the overall performance as "Pass" with a score of 78. Among the 40 students evaluated, 26 students achieved scores categorizing their jumping abilities as "Pass," meeting the minimum criteria for physical health. Additionally, there were 10 students of "Good" performances, particularly noteworthy given the stringent standards of the assessment. Notably, there were four instances of "Excellent" performances.

As to Long Distance Run.The meantime for the long-distance run among the students is 3.81 minutes. Judging by the frequency distribution, the majority of students received a classification of "Poor" (consisted of 32 students) for their performance in the long-distance run. Furthermore, 7 students have "Below Average" and 1 student classified as to "Average" .

Based on the physical health scoring criteria in China for long-distance running performance, the students' results vary across different scores and categories. The mean score for the long-distance run is

approximately 3.81, categorizing the overall performance as "Pass" with a score of 73. Out of the 40 students evaluated, the majority, totaling 36 students, achieved scores that categorize their performance as "Pass," with scores ranging from 61 to 92. Notably, one student achieved an "Excellent" score, indicating exceptional performance, with a score of 92. Additionally, there are three students with scores in the "Good" range, falling between 81 and 88. However, there was one student who scored in the "Fail" category with a score of 40.

Significant Difference Between the control Group Without Using Sports App and Experimental Group Using Sports App After/During the Experiment

The statistical analysis of the physical fitness measures reveals several noteworthy findings. Firstly, concerning Body Mass Index (BMI), the mean BMI of the experimental group (Mean = 20.53, SD = 2.43) was lower than that of the control group (Mean = 21.48, SD = 3.54), although this difference did not reach statistical significance (t-value = 3.222,significance value = 0.077). This implies a trend towards lower BMI in the experimental group, albeit not statistically significant. Secondly, for Lung Vital Capacity, there was a significant difference observed between the control (Mean = 2913, SD = 486.9) and experimental (Mean = 3278, SD = 348.8) groups, with at-value of 5.311 and significance value of 0.024, indicating that the experimental intervention led to a significant improvement in lung function compared to the control group. Conversely, no significant differences were found between the control and experimental groups in 50m Running Result, Standing Long Jump, and Long-Distance Run, meaning that the intervention did not lead to notable changes in sprinting, jumping, or endurance capabilities compared to the control group in these measures.

Significant difference in the pretest and post-test of the control group

The statistical analysis of the physical fitness measures before and after the intervention reveals several significant findings. Regarding Body Mass Index (BMI), there was asignificant decrease observed from the pre-test (Mean = 21.59, SD = 3.79) to the post-test (Mean = 21.48, SD = 3.54) in the experimental group, with a t-value of 2.08 and significance value of 0.045. This implies that the intervention led to a slight reduction in BMI among participants. Secondly, for Lung Vital Capacity, 50m Running Result, Standing Long Jump, and Long- Distance Run,there were significant improvements observed from the pre-test to the post-test in these measures, as indicated by the rejection of the null hypothesis in all cases. Specifically, Lung Vital Capacity increased from a mean of 2893 before the intervention to 2914 after, with at-value of -2.64 and significance value of 0.012. Similarly, 50m Running Result improved from a mean of 9.47 to 9.41, Standing Long Jump increased from 1.66 to 1.68 meters, and Long-Distance Run decreased from 4.22 to 4.18 minutes, with t-values of 4.08, -0.69, and 3.72, respectively, and significance values all below 0.05.

Significant difference in the pretest and post-test of the experimental group

The statistical analysis of the physical fitness measures before and after the intervention reveals significant improvements across all assessed parameters. There was a significant decrease observed in Body Mass Index (BMI) from the pre-test (Mean = 21.09, SD = 3.21) to the post-test (Mean = 20.53, SD = 2.43) in the experimental group, with a t-value of 3.84 and significance value of 0.000. This implies that the intervention led to a notable reduction in BMI among participants. Secondly, for Lung Vital Capacity, 50m Running Result, Standing Long Jump, and Long-Distance Run, there were significant improvements observed from the pre-test to the post-test in these measures, as indicated by the rejection of the null hypothesis in all cases. Specifically, Lung Vital Capacity increased from a mean of 2924

before the intervention to 3278 after, with at-value of -7.71 and significance value of 0.000. Similarly, 50m Running Result improved from a mean of 9.61 to 9.13, Standing Long Jump increased from 1.62 to 1.78 meters, and Long-Distance Run decreased from 4.20 to 3.81 minutes, with t- values of 10.81, 11.11, and 8.25, respectively, and all significance values below 0.001.

Conclusion

Based on the summary of findings, the following conclusions are formulated:

1. Although students in both groups maintained a normal BMI, the experimental group using the sports app showed lower lung capacity and poorer 50m sprint performance, indicating that BMI does not necessarily reflect other aspects of physical fitness such as lung capacity, sprinting ability, standing long jump performance, and long-distance running capabilities. This implies that relying solely on BMI as an indicator of physical fitness is insufficient. Educational institutions should adopt a more holistic approach to assessing student fitness, incorporating various physical fitness parameters to provide a comprehensive evaluation of their health.

2. Without the use of the sports app, there were no significant differences between the control and experimental groups in BMI, lung capacity, sprinting, long-distance running, or standing long jump performance, demonstrating that no intervention resulted in similar physical fitness outcomes for both groups. This implies that traditional physical education programs may not be sufficient to create significant improvements in student fitness. Schools should consider integrating innovative tools like sports apps to enhance the effectiveness of their physical education curriculums and better support student health and fitness.

3. The sports app intervention led to significant improvements in all measured physical fitness parameters for the experimental group compared to their pretest scores, proving that the sports app is particularly effective in enhancing overall physical fitness. This demonstrates the potential of technology-enhanced interventions in achieving substantial fitness gains. Schools should leverage sports apps to provide structured and engaging fitness programs, helping students achieve higher levels of physical fitness and overall well-being.

4. Post-intervention, the sports app significantly improved lung capacity in the experimental group compared to the control group, although it did not lead to superior improvements in other physical fitness parameters, highlighting its specific benefit for respiratory fitness. This implies that sports apps can be particularly useful in targeted fitness improvements, such as enhancing respiratory health. Physical education programs should include specialized modules using sports apps to focus on specific areas like lung capacity, which are crucial for overall health and athletic performance.

5. The sports app intervention resulted insignificant improvements in BMI, lung capacity, sprinting, standing long jump, and long-distance running for the experimental group from pretest to post-test, indicating that the sports app provided a comprehensive and effective training program that positively impacted multiple areas of physical health and performance. This indicates that sports apps can serve as a comprehensive tool for improving various aspects of physical fitness. Schools should adopt these apps to create well-rounded fitness programs that address multiple fitness dimensions, ensuring students benefit from balanced physical development.

6. The findings highlight the need to propose a wellness program for college students that incorporates the use of educational sports apps to enhance their physical fitness and overall health. Implementing

such a program can provide a modern, engaging approach to physical education, catering to the diverse needs of students. Colleges should develop and promote wellness programs that integrate sports apps, offering regular training sessions, personalized fitness plans, and continuous support to foster a healthier student population.

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