



Physical Fitness and Mental Health of Indonesian University Students in the Post-Pandemic Era: A Descriptive Perspective

Catur Supriyanto¹; Heri Wahyudi²; Testa Adi Nugraha³; Nur Ahmad Arief⁴; Muhammad Asrul Sidik⁵; Anas Ahmadi⁶

^{1, 2, 3} Sport Science department, Universitas Negeri Surabaya, Indonesia

⁴ Physical Education, Health and Recreation department, Universitas Negeri Surabaya, Indonesia

⁵ Sports Coaching Education Department, Universitas Negeri Surabaya, Indonesia

⁶ Indonesian Language and Literature, Universitas Negeri Surabaya, Indonesia

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Abstract

Physical fitness and mental health are among the most important elements influencing student success. However, sports science students' physical performance and mental wellbeing have received much too little consideration. This study aimed to obtain empirical data on university students' physical performance and mental health after the COVID-19 pandemic. The COVID-19 pandemic severely impacted physical and mental health. This study determined the impact of the pandemic on the physical fitness and mental health of university students. This empirical study was conducted at two universities in Surabaya, Indonesia. Data were collected in August 2023. Four hundred university students completed the self-administered survey. Three hundred thirty-seven students completed the survey in full. 70.6% were undergraduate students, the average semester was 3.8, and the average age was 22. 35.8% were female students and 64.2% were male students. The findings indicate that the student's physical fitness and their mental health is moderate. These results are relevant to regional and international audiences, as university students face similar physical and mental challenges after the pandemic and related public health interventions. Low-threshold initiatives are needed to mitigate the impact of the pandemic. These may include interventions to strengthen students' sense of control, belonging, relaxation, mindfulness, and counseling services. Gender differences need to be addressed.

Keywords: *Mental Health; Physical Fitness; Post Pandemic*

Introduction

The Covid-19 pandemic has not only affected physical health but also affected a person's mental health (Bukhorf, 2006). This situation happened because COVID-19 is considered a new source of stress for the community. The literature explains that activities such as quarantine, isolation, and keeping distance affect a person's psychological health and elicit a person's reaction to the pandemic (Andrini &

Surasmi, 2022; Marpaung, 2022). Increased feelings of loneliness and reduced social interaction may be factors at risk for mental disorders such as schizophrenia and major depression. There is Anxiety about the health of those closest to them, especially the elderly and those who suffer from a physical illness. Uncertain about what will happen can increase fear, Anxiety, and depression (Anderson & Shivakumar, 2013). If Anxiety occurs continuously, this can worsen mental health and cause severe disorders, such as anxiety disorders, obsessive-compulsive disorder, stress, and trauma-related disorders.

Another aspect that can trigger disorders is stigma and discrimination towards infected people and front-line health workers (Vieira & Barbosa, 2020). In Indonesia itself, stigma and discrimination are real. The form of stigma and perceived discrimination, namely avoiding and closing the door when encountered health workers, expelled from their residence, ostracized, and prohibited from using public facilities. Mental health disorders that often occur during the COVID-19 pandemic range from mild to severe, namely excessive Anxiety, stress, post-traumatic stress disorder, depression, and xenophobia (Nurani, 2021). Many things have happened as a result of this pandemic, especially in a social environment: excessive fear about personal safety and family, remote lessons for students, also work from home for employees, feeling bored and bored because they cannot travel long distances and rarely interact with the public, reporting about excessive covid, makes many people anxious because the number of hoaxes circulating on social media (Chtourou et al., 2020; Shirmohammadi et al., 2022). This situation makes people anxious and causes mental disorders. Disturbance mental is the most essential aspect of realizing good health. However, these mental health problems are often seen as weak in several developing countries.

After the pandemic, adaptation is essential because it relates to how individuals can maintain their existence when changes occur in their environment. Society and its elements are invited together to get used to dealing with the post-pandemic situation (Singh et al., 2021). This situation is shaped by cultivating new habits. This adaptation is carried out in various areas of life, such as education, economics, health, society, and culture. In the education sector, for example, the distance learning system may be used to learn amidst social restrictions due to and after the pandemic (Churiyah et al., 2020). In addition, hygiene and sanitation standards have been raised to a higher level in the health sector. This condition requires society and its elements to adapt immediately to the circumstances to get through this pandemic safely. The ability to adapt quickly becomes very important in a situation full of uncertainty like today.

However, in the sports science department, the only students who will achieve outstanding achievements are those who possess the following qualities: a) Excellent physical potential; b) Perfect mastery of techniques and tactics; c) Good psychological and moral qualities that are commendable and are characteristic of the sport being pursued; d) Overall physical and mental suitability for the sport; e) Have discipline, dedication, and perseverance in practice; and f) Have years of practice and competition experience (Maksum & Indahwati, 2023). One of the determining factors for a sports science student to excel is that the student must have an excellent physical condition, the proper techniques and tactics, mental and mature psychological factors, and optimal health levels. Suppose the student is not in peak condition with physical, physiological, and psychological requirements and technical skills and does not meet the provisions and laws of biomechanics. The coach's method and training strategy will not maximize the student's performance. From the description above, it can be seen that the primary source of mental health is a person's way and attitude in dealing with life's problems. Several studies discuss the importance of physical fitness and mental health (Amana et al., 2021; Nugroho et al., 2022), but few studies discuss the physical performance and mental health of students from the sports science department. Evidence suggests that physical fitness and mental health are among the most critical factors for the student's performance (Redondo-Flórez et al., 2022). Far too little attention has been paid to sports science students' physical performance and mental health. The main aim of this study is to investigate the physical fitness and mental health of sports science students.

The physiological principles of preventing training are now more evident than ever following a period of enforced isolation brought on by the COVID-19 virus. It has been demonstrated that cutting back on physical activity negatively influences health and athletic/sports performance (Malm et al., 2019). Regarding the relationship between exercise and health, it is exciting to provide data on the beneficial effects of physical exercise on health and quality of life in children, adults, and elderly stages. When considering a lifestyle habit to sustain mental health, physical activity is sometimes disregarded. People who are active frequently are less likely to develop depression or anxiety. The World Health Organisation (WHO) recently recommended that adults restrict their sitting time and replace it with physical activity of any degree (Adrian Bauman, Tien Chey, Cora L Craig, Barbara E Ainsworth, James F Sallis, Heather R Bowles, Maria Hagstromer, Michael Sjostrom, Michael Pratt, IPS Group, 2009). These statistics imply that pupils who continuously attend college. Depression and anxiety are less likely to occur in people who exercise regularly (Wolf et al., 2021). However, there is conflicting data to support this. Multiple processes have been put up by researchers as potential explanations for the beneficial impact of physical activity on mental health (Anderson & Shivakumar, 2013). Numerous potential physiological processes have been identified through studies. For instance, exercise boosts endorphin levels, which make individuals happier, more upbeat, and more relaxed while lowering stress hormones like cortisol and adrenaline (Ai et al., 2021). In addition, exercise increases BDNF levels, which may help alleviate anxiety symptoms.

There are three potential mechanisms from a psychological standpoint. As a result of increased exposure to anxiety-related sensations from frequent exercise, anxiety sensitivity is reduced, improving mental wellness. (Seligman & Csikszentmihalyi, 2014). Second, physical activity can promote self-assurance. Nearly all forms of exercise are beneficial, and both exercise and relaxation training can reduce the negative effects of stress on physical and mental health. (Rahayu, 2021). Exercises that may be done at home, such as yoga, dancing to music, exergames, and other exercises, have been demonstrated to promote social and emotional wellbeing and reduce a range of mental illness symptoms. (Chtourou et al., 2020). Through psychological reappraisal and autonomic stress management techniques, yoga, an ancient activity that focuses on the body and the mind, enhances psychological well-being. Stress reduction is a benefit of almost all yoga forms. (Kinser & Lyon, 2014). Exergames, or exercises based on video games, encourage young people to exercise at home, and the Internet can encourage friendship and social engagement.

The impact of mental health on individuals is universal, leading to experiences of stress and psychological strain (Andrini & Surasmi, 2022). Individuals commonly encounter stress when the demands they face are beyond their capacity. Prominent stressors encompass significant life events, such as parental infidelity, divorce, spousal bereavement, financial instability resulting from loss of income or employment, and familial disease. One potential cause of stress might lead to the activation of another, as exemplified by financial challenges after unemployment. (Suwijik & Qurrota, 2022)

Coaches may encounter elevated stress levels when confronted with a succession of demands that persistently impede their capacity to enhance performance. In addition to physical training, a coach must address the psychological development of athletes. This physical training entails equipping coaches with the necessary skills to identify and address psychological challenges and providing appropriate solutions and stress reduction techniques for athletes.

Enhancing mental well-being can be achieved by cultivating friends' and family members' social support networks (Schunk & DiBenedetto, 2014). Individuals in social networks often exhibit compassionate and supportive reactions when confronted with the challenges or hardships others face, expressing concern and empathy and offering guidance or suggestions. They enhance an individual's self-confidence and self-esteem through reassurance and positive feedback. These groups can offer help by facilitating those with comparable challenges to exchange experiences and emotions. Conversely,

empirical studies have demonstrated that adverse social interactions, characterized by persistent discord and contemptuous dispositions exhibited by individuals, can undermine one's psychological well-being.

Engaging in physical activity is an additional method for preserving mental well-being. For instance, empirical evidence indicates that engaging in consistent physical and aerobic exercise has been associated with heightened levels of self-assurance, decreased symptoms of depression, and enhanced cognitive focus. Relaxation techniques, such as deep breathing and meditation, effectively mitigate and diminish the impact of stress.

Based on the abovementioned analysis, every coach must possess the capacity to provide mental training to their students, both before and after physical training sessions. Despite encountering numerous challenges in mental training for athletes, a coach must be able to offer optimal solutions for their students.

Method

The study was conducted at the Faculty of Sports and Health Sciences, Surabaya State University in 2023. The present study employs a quantitative descriptive methodology. Descriptive research pertains to the systematic examination and characterization of a current occurrence. A descriptive study aims to offer a comprehensive outlook on the characteristics of a symptom or event, including its sources and repercussions, in order to facilitate a thorough discussion. This study employs survey research in which the researcher administers a survey to a sample or an entire community of people in order to describe attitudes, opinions, behaviour, or particular characteristics of the population (Creswell & Creswell, 2018). Test were used to describe the characteristics of the students particularly students' fitness level and mental health.

The utilization of the random sampling approach is commonly observed in descriptive quantitative studies. The research sample comprised 100 participants enrolled as students at Surabaya State University. Fifty male with an average age of 20.2 years and fifty female students with an average age of 19.8 were assessed and filled out the questionnaires. The study excluded students with disabilities or special education needs. As a result, the sample included pupils who were enrolled in a regular university program.

The data collection methods encompass the following steps: 1) Participants are provided with a comprehensive overview of the research's context and objectives. 2) Participants are informed about the protocols and guidelines that must be followed during the data-gathering phase. Participants who have provided their signed consent letters possess the prerogative to decline participation in this research endeavor. The participants were provided with identical instructions about the execution of the exam. 4) The comprehensive elucidation of the graded fitness test procedure and mental health is provided. 5) The graded fitness test and mental health measurement have been successfully conducted. The outcomes of the graded fitness test are transformed into a measure of physical fitness status.

The collection of data was conducted through the utilization of multilevel fitness tests (MFT). The research utilizes the Indonesian Physical Fitness Test (TKJI) as the primary instrument for data collection. The TKJI comprises several tests: the 60-meter sprint test, 60-second body hanging test, 60-second sit-up test, vertical jump test, and 1200-meter running test (Marlissa et al., 2022). These tests serve as the foundation for the data collection approach employed in this study. A self-rated mental health (SRMH) survey was used to measure mental health (Ahmad et al., 2014). It comprises five constructs.

Descriptive quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) version 21 for Windows. We began by analysing the descriptive statistics of the present sample

using SPSS to understand the basic background information of the students; estimate the mean, median and mode from the participants. Next, we displayed the data in table.

Results

The physical fitness variables that were objectively evaluated underwent a normality assessment using visual inspections of data distribution plots, including Q-Q plots and histograms. All measured objectively variables were found to follow a normal distribution. The present study examines self-reported fitness data, which are analyzed using frequency distributions that include cumulative relative frequency. The physical fitness data, which were objectively tested, are presented in the form of means (standard deviation) or medians (25th to 75th percentiles).

Table 1. Descriptive data for objectively measured physical fitness and mental health in Indonesia.

Variable	Men	Women	P
the 60-meter sprint test,	7.3	8.6	<0.001
60-second body hanging test,	45	36	<0.001
60-second sit-up test,	51	25	<0.001
Vertical jump test	62	45	<0.001
1200-meter running test	3.52	4.41	<0.001
Mental health	32.44	37.64	<0.001

The data on self-reported fitness was subjected to a Chi-squared test to examine the disparities in frequency between males and females. The Mann-Whitney U was employed to examine whether there were any significant differences between genders in all objectively assessed fitness measures. Effect sizes for the observed sex differences were computed using Cohen's *d* and were categorized as trivial (≤ 0.19), diminutive (0.20–0.49), medium (0.50–0.79), and large (≥ 0.80) according to Cohen's classification (Cohen, 1988).

In the sample population, individuals of both genders who self-identified as belonging to the same fitness category had varying objectively assessed fitness levels. Men consistently showed significantly greater fitness levels across all tests and categories. The effect sizes for the differences between men and women within each category varied from 0.5 to 3.0. Moreover, more women were inclined to overstate their mental health than men.

Table 2 The comparison between vertical jump test, 1200m running test and mental health result

Variable	Vertical Jump test	1200 m running test	mental health
Men	62	3.52	32.44
Women	45	4.41	37.64

Table 2 shows that In women, changes in hormone levels, such as estrogen and progesterone, can affect parts of the nervous system that are associated with mood disorders as an example of mental health issues. Changes in hormone levels usually occur during menstruation, pregnancy, childbirth, and menopause. Women are generally socialized to be able to care for and educate and to be sensitive to other people's opinions (Stratford, 1998). This makes women vulnerable to defining themselves through other people's opinions, which can affect their mental health. The demand for women to be able to play multiple roles also plays a role. For example, women who are solely homemakers may feel their role is belittled by society.

Meanwhile, women who have careers feel conflict between their roles as wives and mothers and their work (Liu & Zhou, 2000). This dual role without support from the family can trigger mental disorders in women. In dealing with problems, women tend to use a coping style that is more emotionally focused and ruminative—ruminating about their problems in their thoughts. Meanwhile, men tend to use a coping style that focuses more on problems and diverts attention to help them forget them.

Discussion

The results about fitness test and mental health suggest that students' physical fitness and mental health are moderate. These findings are relevant to regional and international audiences, as university students face similar physical and mental challenges following the pandemic and related public health interventions (Coakley et al., 2021). Physical activity has several health advantages, such as enhanced mood and decreased stress levels. Similarly, a nutritious diet has been shown to impact mental well-being positively. Maintaining optimal physical health enhances overall well-being over an extended period. Several organizational aspects may influence the engagement of women in physical activity (PA) (Aljehani et al., 2022). One such element is the availability of facilities. Additionally, the access, quantity, and variety of PA programs offered also have a role in women's participation (Augustsson et al., 2009). Program providers play a crucial role in the recruitment and retention of women in physical activity (PA) programs. This role is achieved by addressing individual women's unique needs, talents, and life stages and employing high-quality instructors who deeply understand women's needs and exhibit compassionately and attentively. Additional factors that have been found to have a favorable impact include the availability of childcare services and the implementation of group activities that involve children (Aboshkair et al., 2012). Furthermore, flexible work schedules accommodating employees' responsibilities outside work have also been beneficial. Lastly, programs that prioritize social interaction have been identified as having a positive influence (Pavlović et al., 2022). The consideration of women's perceived comfort and safety in the location of program implementation is also deemed significant.

The conduct of instructors has the potential to enhance the competence of participants, hence promoting their sustained engagement. Additionally, cultivating intrinsic motivation can lead to heightened levels of pleasure and enjoyment. Furthermore, the physical environmental factors affecting women's engagement in physical activity include the constructed and natural surroundings, encompassing weather conditions and land-use regulations. A notable elevation in stress levels during the training phase, followed by a subsequent decrease during recovery. The antithetical outcome was discovered within the context of the recovery scale. When individuals possess a combination of expertise and capabilities, they commonly suffer feelings of anxiety (Chtourou et al., 2020). Throughout the match, several occurrences transpired, including the emergence—of negative cognitions, elevated stresses, and therefore. In certain instances, athletes may experience a decline or reduction in their psychological responses. The user's text has been modified to adhere to academic writing conventions.

The above sentence demonstrates the significance of the period. Adolescence may be characterized as a developmental phase that marks the transition from childhood until adulthood. Typically, athletes are in their adolescent years—the manifestation of adverse affective states in individuals' attitudes and actions. Aging makes individuals susceptible to associated stress. Physiological variables might lead to The impairment of several faculties, such as visual perception, and Cognitive processes, such as thinking, memory, and auditory perception (Scott et al., 2015). Several further investigations have reached specific findings. Exhibit reduced levels of perceived stress and A heightened level of psychosocial functioning. It is evident that Professional athletes typically exhibit a higher level of proficiency in managing this aspect (Anshel & Sutarso, 2010).

Individuals often encounter challenges while attempting to regulate their emotions. However, specific strategies or techniques are more efficient in managing these issues. The individual in question is

a participant in athletic activities. Elites and specialists may have a higher propensity for investment. The topic of interest is sports and the capacity to manage and navigate circumstances that induce stress effectively. And not necessarily superior. It is pretty probable that these athletes derive more significant advantages from the training sessions. They are effectively acquiring the skills to manage unforeseen circumstances, Psychological problems, and sources of stress.

College athletes must not only deal with academic duties, but they must also go through rigors training routines and cope with the stress of winning and losing tournaments(Huang & City, 2023). Preserving athletes' mental stability and drive necessitates a significant contribution from a trainer. Personal circumstances are derived from persons by integrating emotional responses and intellectual faculties. The mental development, enhancement, and sustenance of an athlete are contingent upon the athlete's possession of a favorable and ideal mental state. The soul element in athletics is contingent upon the athlete's skill level and mental prowess. It encompasses positive thoughts, conceptualization of ideas and notions, and exercises implemented during coaching sessions(Jowett & Cramer, 2010). These activities foster positive emotions and thoughts, yielding beneficial outcomes for an athlete's competitive objectives. Motivation can be described as the inherent power or driving force that compels individuals to engage in positive behaviors(Karaman et al., 2020). In order to excel in their athletic pursuits, athletes must possess a strong level of motivation, which manifests as a deep interest and a genuine commitment to the coaching process. In this particular scenario, it is evident that a trainer assumes a proactive role in promoting the holistic growth of an athlete under their tutelage, encompassing both physical and mental aspects. The observed disparities in health-related physical fitness performance among the students participating in this study are likely to be influential factors in the varying degrees of implementation of the physical education program. Therefore, a properly designed and closely monitored physical education program can enhance students' overall health across all educational levels. Therefore, it is essential to use a variety of strategies in order to mitigate health-related issues and improve the overall physical fitness of university students.

Conclusion

This study aims to portray the student's physical fitness and mental health. The results indicate that students have moderate levels of physical fitness and moderate mental health levels. Given the present study's constraints, it is impossible to ascertain the efficiency of this particular feature of the physical education curriculum. There is a need for longitudinal research that continually measures schoolchildren's physical fitness performance and its correlation with their performance in university activities and sports competitions. Therefore, when well-designed and closely monitored, the physical education curriculum can enhance students' overall health and fitness levels throughout all educational stages. The observed discrepancies in health-related physical fitness performance among the students in this study are likely to be influential factors in the various degrees of physical education programme implementation. As a result, a well-planned and regularly monitored physical education programme can improve students' general health at all educational levels. As a result, it is critical to employ a number of measures in order to alleviate health-related difficulties and improve university students' general physical fitness.

Conflict of Interest – All authors in this study declare that they have no conflict of interest with any party.

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