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The Relationship between Health-Related Physical Fitness and Psychological Health of Retired Martial Arts Athletes

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Abstract: This study used a survey approach to determine the fitness and health conditions of retired martial artists and the relationship between the two. A total of 33 subjects, consisting of 17 retired male martial artists and 16 retired female martial artists, participated in this study. The instruments used in this study were a fitness test battery and the General Health Questionnaire 12 (GHQ-12). The fitness test battery consisted of five test items, namely Body Mass Index (BMI), sit and reach (flexibility), 1-minute push-ups (arm and chest muscle strength), 1-minute sit-ups (abdominal muscle strength), and a 12-minute run (cardiovascular endurance). The data analysis techniques in this study used descriptive statistics, percentage formulas, and correlations. The analysis was performed using MS Excel and JASP. Nearly half of retired martial artists, both female and male, had poor physical fitness levels, while the majority of retired martial artists showed signs of psychological distress. There is a relationship between fitness levels and the psychological health of retired martial artists. The results of this study indicate the importance of developing educational programs for retired athletes to maintain physical fitness and psychological health in future studies.

Keywords: Martial Arts, Physical Fitness, Psychological Health, Retired Athletes

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INTRODUCTION

Retirement from competitive sports is inevitable and will be experienced by every athlete. An athlete's readiness to face new challenges during retirement affects the quality of life of retired athletes themselves (Nurhidayah et al., 2024). Challenges such as the transition period into a second career often present unique and daunting obstacles for athletes (Jones et al., 2022). Considering the journey towards a second career, retired athletes experience several things, including changes in their rhythm of life, changes in activities, challenges in self-development, learning new tasks at work, identity crises, and adaptation to a new environment (McFalls et al., 2022; Nilaweera et al., 2023). A decline in physical activity and lifestyle changes during the transition period are common among some retired athletes (Gale et al., 2025). If this continues, physical fitness levels will decline, which will ultimately have an impact on physical and psychological health, quality of life, and well-being.

People who are physically fit and psychologically healthy are generally more productive (Rossi et al., 2025). Fitness is a condition in which a person can perform daily activities without experiencing significant fatigue and can still do additional activities in their spare time (Jeoung & Pyun, 2024). Physical fitness as a component of health is influenced by four indicators, including body composition, flexibility, muscle strength

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and endurance, and cardiovascular endurance (Nurhidayah, Prasetyo, Sutapa, Nanda, et al., 2024). A person who has poor fitness is generally characterized by poor performance in some or all of the physical fitness indicators. Poor performance in physical fitness indicators is generally caused by poor diet and a sedentary lifestyle. The accumulation of these two factors ultimately makes a person lazy to do physical activities or exercise. However, being active in physical activities and sports is a good way to improve the indicators that affect physical fitness (Sönmez et al., 2025).

Meanwhile, psychological health is influenced by biological factors, social factors, past experiences, habits, and lifestyle (Yang et al., 2024). Environmental factors, such as social factors, play an important role in psychological health. For example, a stressful work environment and an unsupportive family environment contribute to the emergence of psychological problems in a person (Nelumdeniya et al., 2025). This can also occur in retired athletes who are starting their second career in a job after retiring from competitive sports. It is not uncommon for retired athletes to have difficulty adapting to their new jobs (Huang et al., 2025). In addition to social factors, past experiences also play a major role in the prevalence of psychological health problems among retired athletes, especially those who retired due to injury. Retired athletes who retire suddenly due to incurable injuries will experience regret, disappointment, and even depression (Pearce et al., 2022; Runacres & Marshall, 2024).

The prevalence of health problems among retired athletes in previous studies needs to be followed up with preventive measures. One of the preventive measures that needs to be taken is providing education on retirement preparation and risk management. To develop retirement preparation education, it is necessary to understand the profile of retired athletes themselves. Considering that the fitness and health profiles of retired martial artists have not been studied in previous research, this study aims to determine the physical fitness and psychological health profiles of retired martial artists. In addition, this study also aims to determine the relationship between fitness and psychological health. Knowing the relationship between these two variables can be the basis for developing retirement preparation education and risk management for retired martial artists.

METHODS

This study used a survey approach to determine the fitness and health conditions of retired martial artists and the relationship between the two.

Incidental sampling was used in this study with the following criteria: 1) martial artists who had decided to retire from competitive sports, 2) had participated in at least one district competition, 3) had been a member of at least one district team, and 4) were willing to be research subjects. A total of 33 subjects, consisting of 17 retired male martial artists and 16 retired female martial arts, participated in this study.

The instruments used in this study were a fitness test battery and the General Health Questionnaire 12 (GHQ-12). The fitness test battery consisted of 5 test items, namely Body Mass Index (BMI), sit and reach (flexibility), 1-minute push-ups (arm and chest muscle strength), 1-minute sit-ups (abdominal muscle strength), and 12-minute run (cardiovascular endurance). The GHQ-12 is a questionnaire used to determine a person's psychological health. This questionnaire consists of 12 statements. All instruments used in this study have validity and reliability values as basic requirements for good research instruments.

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The data analysis techniques used in this study were descriptive statistics, percentage formulas, and correlations. The analysis was conducted using MS Excel and JASP. Data collection began with the research team explaining the questionnaire completion process and fitness test implementation. Once the subjects understood the implementation process, they began filling out the GHQ-12 questionnaire. The completed answer sheets were submitted to the officer. Participants began warming up and stretching before undergoing fitness measurements. Once ready, participants began measuring their BMI, flexibility, 1-minute push-ups, 1-minute sit-ups, and a 12-minute run. Fitness measurements were carried out sequentially with a 2-minute rest between tests. If one of the test items could not be completed, the subject was considered to have failed.

RESULT

Table 1 presents sample characteristics, including age, gender, competition experience, length of time since retirement from competitive sports, weekly sports activities, and comorbidities.

Table 1. Sample Characteristics

Characteristics	Total Samplling (n=33)	Male (n=17)	Female (n=16)
Age M (SD)	31.52 (3.57)	31.4 (3.45)	31.6 (2.9)
Gender n (%)			
Male	17 (52%)	17 (100%)	0 (0%)
Female	16 (48%)	0 (0%)	16 (100%)
Competing Experience			
Region	5 (15 %)	2 (40%)	3 (60%)
Province	13 (39 %)	7 (54%)	6 (46%)
National	15 (45%)	8 (53%)	7 (47%)
International	0 (0%)	0 (0%)	0 (0%)
Length of Retirement n (%)			
1-3 year	9 (27%)	5 (56%)	4 (44%)
4-6 year	14 (43%)	6 (43%)	8 (57%)
7-10 year	10 (30%)	6 (60%)	4 (40%)
Weekly Exercise n (%)			
0 hour/weel	21 (64%)	11 (52%)	10 (48%)
1-2 hour/weel	7 (21%)	3 (43%)	4 (57%)
> 2 hour/weel	5 (15%)	3 (60%)	2 (40%)
Comorbidities n (%)			
Obesity	22 (0%)	11 (50%)	11 (50%)
Chronic injuries	11 (0%)	6 (55%)	5 (45%)
Mental disorders	0 (0%)	0 (0%)	0 (0%)
High blood pressure	0 (0%)	0 (0%)	0 (0%)

Figure 1 presents the results of fitness measurements in retired female martial artists, consisting of body composition, flexibility, strength, and cardiovascular endurance measurements. BMI measurement results show that 6% of retired female martial artists have a BMI in the normal category, 41% are overweight, and 53% are obese. A total of 18% of retired female martial artists had poor flexibility, and 82% had very poor flexibility. A total of 59% of retired female athletes had moderate arm and chest muscle strength, and 41% had poor arm and chest muscle strength. A total of 47% of retired female athletes had moderate abdominal muscle strength, and 53% had poor abdominal muscle strength. A total of 76% of retired female athletes have poor cardiovascular endurance, and 24% have very poor cardiovascular endurance. Overall,

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the physical fitness of retired female martial artists is in the moderate category for 53% and in the poor category for 47%.

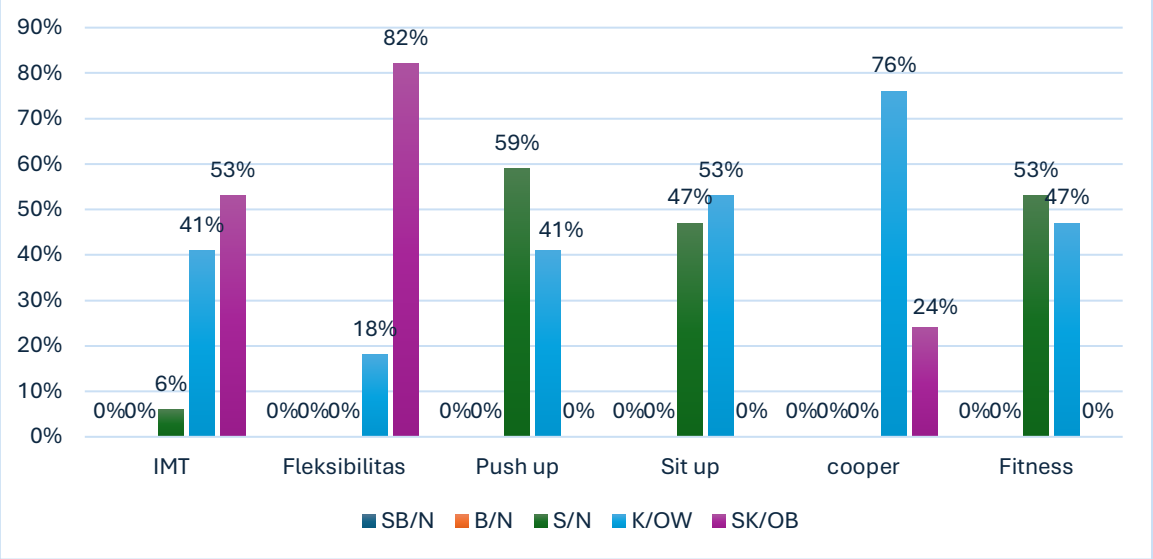

Figure 1. Fitness measurement results for male athletes

Figure 2 presents the fitness measurement results of retired male martial artists, consisting of body composition, flexibility, strength, and cardiovascular endurance measurements. The BMI measurement results show that 44% of retired male martial artists have a BMI in the overweight category, and 56% are in the obese category. A total of 25% of retired male martial artists had poor flexibility, and 75% had very poor flexibility. A total of 25% of retired male athletes had moderate arm and chest muscle strength, and 75% had poor arm and chest muscle strength. A total of 100% of retired male athletes had moderate abdominal muscle strength. A total of 50% of retired male athletes had poor cardiovascular endurance, and 50% had very poor cardiovascular endurance. Overall, the physical fitness of retired male martial artists was in the moderate category for 56% and in the poor category for 44%.

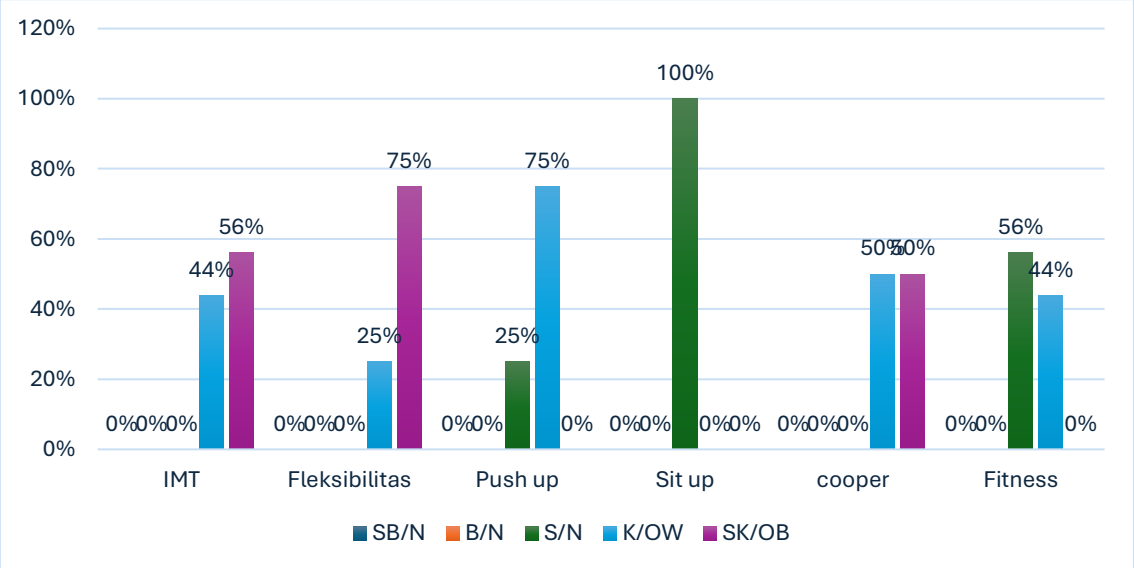

Figure 2. Fitness measurement results for female athletes

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Table 2 presents the psychological health conditions of retired martial artists as measured using the GHQ-12. The analysis results show that 13% of retired female martial artists' psychological health conditions are in the average or generally good category, while 88% show signs of psychological distress. Meanwhile, among retired male martial artists, 24% fell into the average category or generally good condition, and 71% showed signs of psychological distress.

Table 2. Psychological Health Measurement Results

Gender	Average	%	Signs of psychological distress	%	Psychological stress	%
Female	2	13%	14	88%	0	0%
Male	4	24%	12	71%	0	0%

Table 3 presents the results of testing the correlation between fitness levels and the psychological health of retired martial artists. The analysis results show a value of $p=0.919$ ($p < 0.05$), which means that there is a relationship between physical fitness levels and the psychological health of retired athletes.

Table 3. The Correlation Test between Fitness and Psychological Health in Retired Athletes

Indicator	Mean	Sd	Pearson's r	p-value	CI95%	
					Lower	Upper
Physical Fitness	2,55	0,50	-0.407	0.019	-0,657	-0,074
GHQ-12	2,12	0,33				

DISCUSSION

The results showed that the average BMI of retired male and female athletes fell into the obese and overweight categories. This was because 64% of retired martial artists did not exercise weekly, which meant there was a decrease in physical activity. Physical activity has a significant effect on a person's BMI (Li et al., 2025; Maruszczak et al., 2025). People who regularly engage in physical activity have normal or healthy BMI levels due to the stability of energy intake and expenditure. The results also show that the cardiovascular endurance levels of retired male and female athletes fall into the poor and very poor categories. A decline in cardiovascular endurance generally occurs due to a lack of maintenance through exercise. This often occurs in retired athletes when they enter retirement. In addition to changes in lifestyle, this can also occur due to a shift in focus, which causes retired athletes to no longer train intensively (Nurhidayah et al., 2024; Nurhidayah et al., 2024).

The fitness level of retired athletes shows that nearly half of them have a low fitness level, while the rest have a moderate fitness level. This decline in fitness is due to a decrease in physical activity and poor diet (Hadiyan & Cosh, 2019). Poor diet affects a person's BMI, which is an indicator of physical fitness (Altowerqi et al., 2020). Meanwhile, a decrease in physical activity will affect flexibility, strength, and cardiovascular endurance, which are also indicators of physical fitness. The results of psychological health measurements show that the majority of retired martial artists, both male and female, show signs of psychological distress. Psychological health problems that occur in retired athletes are generally caused by changes in the rhythm of life, the way of retiring, identity crises, and the readiness of the retired athletes themselves (Aston

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et al., 2022). Therefore, many retired athletes who do not prepare well for retirement experience mental health problems.

Research shows that there's a link between physical fitness and mental health. People who are physically fit tend to exercise regularly every week. Exercise releases endorphins and lowers cortisol levels (Bekris et al., 2022; Jayadilaga & Purnomo, 2023). This is one of the reasons why fitness levels affect psychological health. Retired athletes need to remain active on a regular basis to maintain good fitness and psychological health. Therefore, education before athletes enter retirement needs to be provided to ensure that retired athletes remain active (Burger & Mafuze, 2023; Silva et al., 2020). The results of this study show the importance of educating retired athletes to maintain physical fitness and psychological health in future studies. Good physical fitness and psychological health will ultimately affect the quality of life and well-being of retired athletes themselves (Ehnold et al., 2024; Steinfeldt et al., 2024).

CONCLUSSION

Nearly half of retired martial artists, both female and male, have poor physical fitness levels, while the majority of retired martial artists show signs of psychological distress. There is a relationship between fitness levels and the psychological health of retired martial artists. The physical fitness and psychological health of retired athletes are influenced by many factors, including physical activity and changes in lifestyle. The results of this study show the importance of developing educational programs for retired athletes to maintain physical fitness and psychological health in future studies. Considering that physical fitness and psychological health can affect the quality of life and well-being of retired martial artists.

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