

The Relationship between Body Mass Index, Stress Levels, Physical Activity, and the Fitness Level of Polri Members of the Central Java Regional Police

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Abstract

Physical Fitness is an important component of physical condition for police officers, including detectives, to ensure they remain ready to carry out their duties. This study aims to determine the relationship between Body Mass Index, Stress Level, Physical Activity Levels, and the Fitness Level of Police Officers in the Central Java Regional Police. This study used a quantitative method with a cross-sectional approach. The population in this study was 2,799 police officers at the Central Java Regional Police Headquarters. The sampling technique used the systematic sampling, resulting in a sample of 140 police officers. The instruments used consisted of BMI (Body Mass Index), GPA-Q (physical activity), PSQ-Op (stress level), and the National Police Physical Fitness Test. Data analysis techniques in this study included descriptive statistics, normality tests, linearity tests, multivariate tests, simple correlation tests, and multiple regression tests. The analysis was conducted using SPSS version 22. The results of the study showed that partially: (1) body mass index contributed 47% with a significant value of $p = 0.00$; (2) stress levels contributed 36% with a significant value of $p = 0.001$; and (3) physical activity contributed 17% with a significant value of $p = 0.014$. Simultaneously, the four variables contributed 19.1% to the Fitness of National Police officers in the Central Java Regional Police, with an F-value of 10.736 and a p-value of 0.00. There is a relationship between Body Mass Index, Stress Level, Physical Activity, and the Fitness Level of National Police Officers in the Central Java Regional Police.

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INTRODUCTION

The Indonesian National Police is one of the government institutions that plays an important role in the state, Article 1, paragraph 3 of the Constitution (1945). Polri members must be physically, mentally, and technically capable of carrying out their duties. Physical quality is important in Polri members' professional skills (Susanto, 2020). The Central Java Regional Police Headquarters consists of 27 Satker, which are divided into several sections: Staff, Operations, and Troops. Polri members, especially those assigned to the Staff and Operations fields, are also required to have good physical Fitness, because in carrying out their duties, all Polri members must always be ready to carry out Police duties directly in the field to carry out security and services to the community, as explained in Article 2 of Law Number 2 of 2002, which states that "Police is one of the functions of state government in the field of maintaining public security and order, law enforcement, protection, protection, and service to the community" (Ministry of Law and Human Rights of the Republic of Indonesia, 2002).

Physical Fitness is a condition that describes the potential and physical ability to perform specific tasks with optimal results without showing significant fatigue (Indonesian National Police, 2011). Physical Fitness for every soldier is an important factor and the main support for career and in carrying out duties (Burhanudin et al., 2018). There are 5 (five) components measured in the physical fitness test of Polri members, namely the 12-minute running test to measure muscle endurance and heart, blood circulation and lung endurance (cardio respiratory endurance), *Pull up* and *Chinning* to measure and endurance of the inner arm muscles, Sit Up to measure strength and endurance as well as abdominal muscles, *Push Up* to measure strength and endurance of the outer arm muscles and *Shuttle run* to measure speed,

agility and body balance (Indonesian National Police, 2011).

Physical health is defined as being able to carry out daily activities, psychological health is having stable emotions, and sociological health is communicating well with the environment. Physical Fitness is the body's ability to carry out daily activities enthusiastically and continuously for a long time without experiencing excessive fatigue after completing the work. Physical Fitness is important for achieving physical work capacity (Marins et al., 2019).

Police officers play a crucial role in protecting and serving the public. They are often faced with unique job demands, involving various physical activities, such as running, jumping, pulling, pushing, and carrying loads, in unpredictable environments and potentially dangerous situations (Feng et al., 2025). Physical health is a crucial component in supporting police performance, especially for police officers performing field duties that require peak physical condition (Kukic, Dopsaj, Cvorovic, et al., 2018).

An ideal body shape is an important indicator in supporting the work performance of police officers (Courpasson & Monties, 2017). In operational police duties that require physical endurance, muscle strength, and the ability to move quickly and swiftly, healthy and balanced body proportions play a crucial role. Good body shape refers to aesthetic aspects and optimal body composition, such as a low percentage of body fat, adequate muscle mass, and a body mass index within the normal range (Marins et al., 2019).

Dawes et al. (2017) reported a significant correlation between physical fitness measures such as the graded exercise test, dominant handgrip strength, and body mass index (BMI) and performance on physical ability tests in highway patrol officers. These findings confirm that aspects of physical Fitness, particularly those related to body composition and cardiorespiratory

capacity, significantly contribute to the effectiveness of police operational duties.

In other words, the more optimal an officer's physical condition, the greater their ability to complete field tasks that require endurance, strength, and rapid response (Dawes et al., 2022). Non-ideal body conditions in police officers, such as being overweight or obese, can negatively impact physical abilities and increase the risk of various diseases. This imbalance in body composition can reduce performance in operational tasks requiring optimal physical Fitness (Da Silva et al., 2014).

The results of the researcher's initial observations showed that there were still members of the Central Java Regional Police who had a low level of physical Fitness, had not met the requirements for graduation, or had a score below 41. This was influenced by internal factors, namely the lack of willingness to exercise due to limited time, Polri members chose to rest and spend time with family at home rather than exercising, poor sleep patterns/sleep quality, it was known that there was excessive obesity and external factors because in the implementation of physical training, members of the Central Java Regional Police who served in the staff and operational sections only got 1 morning exercise activity on Friday with a duration of 07.30 to 08.00 WIB.

Furthermore, members of the Central Java Regional Police (Polri) are required to be on standby 24/7. Operational work units are scheduled to be on duty 24/7. During this duty, Polri members conduct security monitoring in Central Java, receive complaints, and provide services to the public. While on duty in the field, Polri members are not constrained by time, which can lead to stress and an unbalanced lifestyle.

From 2021 to 2024, 137 members of the Indonesian National Police (Polri) at the Central Java Regional Police (Mapolda Jateng) suffered from chronic illnesses,

including diabetes, heart disease, stroke, and hypertension in 173, cancer in 16, kidney disease in 69, and other illnesses in 108. Previous research has shown that the physical fitness level of Polri members serving in operational units remains relatively low. Various factors, both internal and external, influence this condition.

An ideal body weight is an important indicator of the performance and professionalism of members of the Indonesian National Police (Polri). As law enforcement officers with a significant responsibility in maintaining security, order, and enforcing the law, Polri members must always be in prime physical condition (Ramayanti et al., 2024). An ideal body weight for police officers reflects physical Fitness. It directly impacts their effectiveness in carrying out physical tasks, such as patrolling, crowd control, disaster management, and even pursuing and apprehending criminals (Yasin et al., 2022).

Furthermore, the work environment faced by members of the Indonesian National Police (Polri) is a significant factor that has the potential to trigger chronic work stress. The Polri work environment is highly complex, challenging, and often unpredictable, which directly impacts the physical and psychological health of its members. Pressures arising from high workloads, high public expectations, risks to personal safety while on duty, and a lack of social and organizational support can create stressful work situations and prolonged stress (Purwanti et al., 2020).

The work stress experienced by police personnel stems not only from the demanding and risky nature of their duties, but also from the structure and culture of the organization itself. In a hierarchical organization like the Indonesian National Police (Polri), lower-level personnel often experience structural pressures, such as strict internal regulations, performance demands, and appraisal systems not necessarily oriented toward individual psychological

well-being. This is exacerbated by irregular work schedules, long shifts, excessive working hours, and limited rest periods (Mendila, 2021).

Body composition assessment is an important method for identifying and monitoring the impact of physical activity and stress levels on police officers (Dicks et al., 2023). Information from this assessment provides a snapshot of an individual's overall health and fitness status. Body composition assessments are more comprehensive when complemented by physical fitness evaluations, providing more accurate data for measuring police officers' physical readiness to perform operational tasks that require peak physical condition.

Based on this background, it is important to conduct research entitled: "The Relationship between Body Mass Index, Stress, and Physical Activity and the Fitness Level of Police Members at the Central Java Regional Police."

METHODS

This study used a quantitative method with a cross-sectional approach. The population in this study was 2,799 police officers at the Central Java Regional Police Headquarters. The sampling technique used the Systematic sampling, resulting in a sample of 140 police officers. The instruments used consisted of BMI (Body Mass Index), GPA-Q (physical activity), PSQ-Op (stress level), and the National Police Physical Fitness Test. Data analysis techniques in this study included descriptive statistics, normality tests, linearity tests, multivariate tests, simple correlation tests, and multiple regression tests. The analysis was conducted using SPSS version 22.

RESULTS AND DISCUSSION

This study aims to determine the relationship between body mass index, stress levels, and physical Fitness in members of the Central Java Regional Police.

1. Descriptive statistical analysis of research variables

Table 1. Descriptive statistics of research variables

Variables	N	Max	Min	Mean	Standard deviation
BMI	140	31.2	19.2	24.6	2.43
Stress level	140	84	25	56.41	9.82
Physical activity	140	2980	1228	2067.09	343.32
Physical Fitness	140	71.8	36	51.31	8.47

Based on Table 1, the results of the descriptive analysis show that the BMI variable has a maximum value of 31.2, a minimum of 19.2, an average of 24.6, and a standard deviation of 2.43. The stress level variable has a maximum value of 84, a minimum of 25, an average of 56.41, and a standard deviation of 9.82. The maximum value achieved for the physical activity variable is 2,980, a minimum of 1,228, with an average of 2,067.09 and a standard deviation of 343.32. Meanwhile, physical Fitness shows a maximum value of 71.8, a minimum of 36, an average of 51.31, and a standard deviation of 8.47.

2. Normality test

Table 2. Normality test

<i>Kolmogorov-Smirnov^a</i>				
Variables	Statistics	Df	Sig	Information
BMI	.058	140	.200*	Normal
Stress level	.050	140	.200*	Normal
Physical activity	.073	140	.063*	Normal
Physical Fitness	.066	140	.200*	Normal

The results in Table 2 show the Kolmogorov-Smirnov normality test data for each variable. The significance values (Sig.) obtained were 0.200 for Body Mass Index (BMI), 0.200 for stress level, 0.063 for physical activity, and 0.200 for physical Fitness. Since all significance values were greater than 0.05, it can be concluded that the four variables were normally distributed.

3. Multicollinearity Test

Table 3. Multicollinearity test

<i>Model</i>	<i>Tolerance</i>	<i>VIF</i>	<i>Information</i>
BMI* Physical Fitness	.992	1,008	No multicollinearity
Stress* Fitness	.970	1,030	No multicollinearity
Physical activity* Fitness	.975	1,031	No multicollinearity

Based on the analysis results in the Table, the *tolerance values* for body mass index, stress level, and physical activity are 0.992, 0.970, and 0.975, respectively. Meanwhile, the *Variance Inflation Factor* (VIF) values for the three variables are 1.008, 1.030, and 1.031, respectively. All *tolerance values* are above 0.10, and the VIF value is below 10, indicating no symptoms of multicollinearity between the independent variables in the model. Thus, all three variables are suitable for inclusion in the regression analysis without worrying about data redundancy issues.

4. Simple correlation test

Table 4: Simple correlation test

<i>Variables</i>	<i>Pearson correlation</i>	<i>Sig</i>	<i>Information</i>
BMI* Physical Fitness	-.312	.000	There is a relationship
Stress level* Fitness	-.256	.002	There is a relationship
Physical activity* Fitness	.169	.046	There is a relationship

The results of Table 4 present the data. The normality test was conducted to determine whether the data for each variable was normally distributed. Based on the results of the Kolmogorov-Smirnov test shown in the Table above, the significance value (Sig.) for the Body Mass Index (BMI) variable was 0.200, stress level was 0.200, physical activity was 0.063, and physical Fitness was 0.200. All significance values were greater than 0.05, so it can be concluded that the four variables were normally distributed.

5. Multiple linear regression test

Table 5. Multiple linear regression test

<i>Model</i>	<i>Unstandardized coefficients</i>		<i>Standardized coefficients</i>
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>
(Constant)	79,011	8,385	
BMI	-0.993	0.269	-0.286
Stress	-0.234	0.068	-0.271
Physical activity	.005	0.002	0.195

Based on the results of the multiple linear regression test in Table 5, it is known that the model constant is 79.011. The regression coefficient for the Body Mass Index (BMI) variable is -0.993 with a standard error of 0.269 and a beta value of -0.286. This indicates that every 1 unit increase in BMI will decrease the physical fitness score by 0.993 units, with a relatively strong adverse effect. The stress level variable has a coefficient of -0.234 with a standard error of 0.068 and a beta of -0.271, which means that every one-unit increase in stress level will decrease physical Fitness by 0.234 units. Meanwhile, the physical activity variable has a positive coefficient of 0.005 with a standard error of 0.002 and a beta of 0.195, which indicates that increased physical activity contributes positively to improving physical Fitness.

6. Partial T-test

Table 6. Partial T-test

<i>Variables</i>	<i>N</i>	<i>T table</i>	<i>T count</i>	<i>Sig</i>
BMI* Physical Fitness	140	1,977	-3,689	.000
Stress level* Fitness	140	1,977	-3,463	.001
Physical activity* Fitness	140	1,977	2,493	.014

Based on the partial t-test results in Table 6, it was found that the three independent variables, namely BMI, stress level, and physical activity, significantly affected physical Fitness. BMI and stress level each had a calculated t-value of -3.689 and -3.463 with a significance below 0.05, indicating a significant adverse effect. This means that the higher the BMI and stress

level, the lower the physical Fitness. Meanwhile, physical activity had a calculated t-value of 2.493 and a significance of 0.014, indicating a significant positive effect, where increased physical activity correlated with increased physical Fitness.

7. Simultaneous F Test

Table 7. Simultaneous F test

Variables	Sum of Squares	Df	Mean Square	F	Sig
$X^1, X^2 * Y^1$	1543,946	2	771,973	12,520	.000 _b
$X^2, X^3 * Y^1$	1104,708	2	552,345	8,515	.000 _b
$X^1 X^2, X^3 * Y^1$	1913.145	3	637,715	10,736	.000 _b

Based on the results of the simultaneous F test shown in Table 7, it is known that all combinations of independent variables, namely body mass index, stress level, and physical activity, simultaneously significantly influence the dependent variable, namely physical Fitness. In the first combination, the BMI and stress level on physical Fitness, the F value obtained is 12.520 with a significance value of 0.000. This indicates that both variables together make a significant contribution to changes in the level of physical Fitness. The second combination, namely stress level and physical activity on physical Fitness, also shows significant results with an F value of 8.515 and a significance of 0.000. Although the F value is lower than the previous combination, this result indicates a significant simultaneous influence. Meanwhile, in the third combination involving all three independent variables (BMI, stress, and physical activity) on physical Fitness, the F value obtained is 10.736 with a significance of 0.000. Together, these three factors significantly influence the level of physical Fitness.

8. Coefficient of Determination (R²)

Table 8. Test of the coefficient of determination (R²)

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the estimate
.438 _a	.191	.174	7,7007

Based on the coefficient of determination (R²) test in Table 4.18 above, it is known that the R² value is 0.191. This shows that body mass index, stress levels, and physical activity contribute 19% to the physical Fitness of members of the Central Java Regional Police. In comparison, the remaining 81% is influenced by other factors outside the scope of this study.

1. There is a relationship between body mass index and the fitness level of members of the Central Java Regional Police.

The study's results showed a significant relationship between body mass index and the fitness level of members of the Central Java Regional Police. This finding indicates a significant negative relationship between BMI and Fitness, meaning that the higher a person's BMI, the lower their fitness level tends to be. This finding is supported by research conducted by Monyeki et al. (2012). A study on the relationship between Body Mass Index (BMI) and physical fitness levels in 256 young people showed a statistically significant relationship. The results of this study indicate that increasing BMI tends to decrease a person's physical fitness level. Conversely, the higher the physical fitness level, the more likely the BMI falls within the normal range.

Similar findings were also presented by Sergi et al. (2023), who stated that high BMI, especially in the overweight and obesity categories, can affect the body's functional capacity. This includes decreased physical endurance, muscle strength, and cardiovascular system efficiency, all of which are important components of physical Fitness. Furthermore, Orr et al. (2019) also

reported a negative relationship between body weight and VO_2max and BMI, strengthening the evidence that excess weight impacts reduced aerobic capacity. In healthy individuals, several main factors influencing VO_2max include respiratory muscle strength, airway size, and lung elastic pressure.

Kingsley Oforka et al. (2023) argue that a higher BMI is correlated with a decreased VO_2max capacity. Excess weight has been shown to negatively impact the body's ability to consume oxygen optimally during physical activity. This supports the statement of Dawes et al. (2018), who explained that VO_2max is an indicator of aerobic Fitness, which is greatly influenced by body composition, including BMI. However, in individuals with a high BMI, respiratory muscle function tends to be impaired due to increased airway resistance and decreased respiratory muscle efficiency, thus impacting Fitness (Alzahrani et al., 2024).

In addition to body composition factors, the physiological aging process also plays a role in increasing BMI. The basal metabolic rate decreases with age, leading to decreased energy burning efficiency. This is exacerbated by decreased physical activity due to heavy administrative and operational workloads and an unbalanced diet. This combination of factors can lead to body fat accumulation and increased BMI in Indonesian National Police (POLRI) personnel. Individuals with a BMI above the standard threshold are at higher risk of various health problems and reduced physical capacity. These impacts can ultimately contribute to decreased performance, effectiveness, and professionalism in performing police duties in the field (Febyan et al., 2020).

2. There is a relationship between stress levels and the fitness level of members of the Central Java Regional Police.

The study results showed a significant relationship between stress levels and

physical fitness levels, with a negative relationship among police officers at the Central Java Regional Police. This finding supports the hypothesis proposed in the study that psychological conditions, particularly stress, are linked to the physical capacity of police personnel.

These results align with research conducted by Wijayanti & Fauzi (2020) that stress experienced by police officers can be triggered by various aspects, including physical, social, psychological, political, and economic factors. In addition, sources of stress in the workplace, such as an unsupportive work environment, inadequate compensation, high workloads, potential risks while on duty, limited facilities, and monotonous work routines, all contribute to the emergence of work stress. These factors can originate from the surrounding environment, organizational structure, or individual characteristics. This is supported by Schilling et al. (2020), who revealed that excessive stress has a negative relationship with the physical Fitness of police officers. High work stress conditions contribute to an increased risk of metabolic syndrome (MetS) among police officers.

Stress is the body's adaptive response to various pressures or demands, whether from the work, social, or personal environment (Ceki ć & Gruji ć, 2024; Sinha, 2024). In stressful police duties, such as exposure to high-risk situations, high workloads, strict professional demands, and uncertain working hours, the level of stress experienced by Polri members tends to be high (Savarimalai et al., 2023).

Chronic stress disrupts hormone regulation, such as cortisol, leading to decreased endurance, chronic fatigue, sleep disturbances, and decreased motivation for physical activity (Coffman, 2020; Knezevic et al., 2023). The negative relationship between stress and physical Fitness found in this study reinforces the understanding that increased psychological burden has the

potential to reduce the physical capacity of police personnel.

In members of the Indonesian National Police, high stress levels can potentially reduce physical Fitness, directly impacting the effectiveness of carrying out tasks in the field.

3. There is a relationship between physical activity and fitness among members of the Central Java Regional Police.

The study results indicate a positive relationship between physical activity and the physical fitness levels of Indonesian National Police (Polri) officers at the Central Java Regional Police. This finding indicates that the higher the frequency and intensity of physical activity, the better the physical fitness levels of police officers. These results align with de Souza et al.'s (2022) findings, which showed that physically active Military Police officers had a lower body fat percentage and lower levels of inflammatory markers than less active officers.

In a research study conducted by Vuković et al. (2020), it was found that the frequency and volume of leisure-time physical activity (LTPA) were significantly correlated with a decrease in body fat percentage (BF%) ($r = -0.306$, $p \leq 0.001$ and $r = -0.370$, $p \leq 0.001$). The results of this study stated that the ideal volume of physical activity is 150–300 minutes per week to reduce BF% (15). In addition, Vuković et al. (2020) reported that 73.3% of 60 general police officers were classified as sedentary (≤ 149 minutes of physical activity per week), and only 21.7% were classified as moderately active (150–300 minutes of physical activity per week). Simultaneously, higher levels of obesity are associated with decreased overall Fitness (Violanti et al., 2017) and increased risk of cardiometabolic disease (Anderson et al., 2016).

Jin et al. (2024) revealed that individuals with high levels of physical activity tend to have better physical Fitness than those who are less active. Regular

physical activity can increase heart and lung capacity, improve blood circulation, and strengthen muscles and joints, thus increasing individual Fitness (Islam et al., 2023; Lemes et al., 2021; Ortega et al., 2018). However, in reality, police officers often exhibit lifestyles that tend to be less physically active. Although the police profession is synonymous with tasks that require physical readiness and quick response, in reality, many police officers are accustomed to static activities in their daily lives, such as sitting for hours in the office, standing guard at posts, or performing administrative tasks (Brierley et al., 2021).

Irregular shift work systems, high workloads, and limited time for regular exercise often exacerbate this lack of physical activity. In the long term, these habits can reduce physical Fitness and increase the risk of health problems, such as weight gain, decreased muscle mass, decreased cardiovascular capacity, and metabolic disorders like hypertension, type 2 diabetes, and dyslipidemia (Bannigida et al., 2019; Mane & Berry, 2023). In line with this, research by Loredan et al. (2024) revealed that Slovenian police officers spend a significant amount of time, averaging 9.7 hours per day, with only 62% meeting the WHO physical activity recommendations. This indicates a less physically active lifestyle, especially during working hours.

It can be concluded that there is a positive relationship between physical activity and the physical fitness level of police officers at the Central Java Regional Police. Regular physical activity, whether in the form of daily activities or structured training, significantly improves cardiovascular capacity, muscle strength, and endurance, which are key components of physical Fitness. The higher the frequency and intensity of physical activity, the better the physical fitness level of police officers.

4. There is a relationship between body mass index, stress levels, and fitness levels of

members of the Central Java Regional Police.

The study's results showed a relationship between body mass index and stress levels with the Fitness of members of the Central Java Regional Police. An ideal body weight is an important indicator of the performance and professionalism of members of the Indonesian National Police (Polri). As law enforcement officers with a significant responsibility in maintaining security, order, and enforcing the law, Polri members must always be in prime physical condition (Ramayanti et al., 2024). An ideal body weight for police officers reflects physical Fitness. It directly impacts their effectiveness in carrying out physical tasks, such as patrolling, crowd control, disaster management, and even pursuing and apprehending criminals (Yasin et al., 2022).

Furthermore, the work environment faced by members of the Indonesian National Police (Polri) is a significant factor that has the potential to trigger chronic work stress. The Polri work environment is highly complex, challenging, and often unpredictable, which directly impacts the physical and psychological health of its members. Pressures arising from high workloads, high public expectations, risks to personal safety while on duty, and a lack of social and organizational support can create stressful work situations and prolonged stress (Purwanti et al., 2020).

The research results show a relationship between body mass index and stress on the Fitness of members of the Central Java Regional Police (Polda). The work stress experienced by police personnel stems not only from the demanding and risky nature of their duties, but also from the structure and culture of the organization itself. In a hierarchical organization like the Indonesian National Police (Polri), lower-level members often experience structural pressures, such as strict internal regulations, performance demands, and an evaluation system not necessarily oriented towards

individual psychological well-being. This is exacerbated by irregular work schedules, prolonged shifts, excessive working hours, and minimal rest time (Mendila, 2021).

Research conducted by Sherwood et al. (2019) found that exposure to high-risk situations, such as handling social conflicts, serious crimes, and involvement in demonstrations, significantly increases the psychological stress experienced by police officers. Direct involvement in violent situations, facing death, and handling emergencies that require a rapid and appropriate response can trigger severe psychological stress disorders in the long term. This condition has the potential to cause various mental health problems such as emotional exhaustion, burnout, anxiety disorders, and depression (Drew & Martin, 2021).

Excessive stress experienced by police officers can negatively impact their physical health. In the long term, chronic stress can trigger metabolic disorders such as metabolic syndrome, hypertension, weight gain, and impaired cardiovascular function (Rineer et al., 2021).

Police officers can abruptly transition from a sedentary state to highly intense physical activity, such as sitting in a patrol car to pursuing a suspect on foot, often while carrying additional weight (Dergaa et al., 2021; Ramey et al., 2014). Therefore, physical Fitness is crucial to meet the demands of the police profession (Sá et al., 2022). However, officers often engage in sedentary activities during much of their duty time, such as sitting in a patrol car for extended periods, attending meetings, or completing administrative tasks (R. Orr et al., 2020). The combination of prolonged periods of inactivity and sudden, vigorous physical activity (such as driving at high speeds, dragging, jumping over obstacles, and arresting suspects) can increase the risk of sudden cardiac death. This additional stress on the cardiovascular system is even more dangerous for officers with low fitness

levels (Dawes et al., 2017; Sorensen et al., 2000).

Furthermore, police officers often exhibit a lifestyle that tends to be less physically active. Although the police profession is synonymous with tasks that require physical readiness and rapid response, the reality is that many police officers are accustomed to static activities in their daily lives, such as sitting for hours in the office, standing guard at posts, or performing administrative tasks (Brierley et al., 2021; Kukic, Dopsaj, Cvorovic, et al., 2018). Irregular shift work systems, high workloads, and limited time for regular exercise often exacerbate this lack of physical activity. In the long term, these habits can reduce physical Fitness and increase the risk of health problems, such as weight gain, decreased muscle mass, decreased cardiovascular capacity, and metabolic disorders such as hypertension, type 2 diabetes, and dyslipidemia (Bannigida et al., 2019; Mane & Berry, 2023).

In a study conducted by Vuković et al. (2020), it was found that the frequency and volume of leisure-time physical activity (LTPA) were significantly correlated with a decrease in body fat percentage (BF%) ($r = -0.306$, $p \leq 0.001$ and $r = -0.370$, $p \leq 0.001$). This study stated that the ideal volume of physical activity is 150–300 minutes per week to reduce BF% (15). In addition, Vuković et al. (2020) reported that 73.3% of 60 general police officers were classified as sedentary (≤ 149 minutes of physical activity per week), and only 21.7% were classified as moderately active (150–300 minutes of physical activity per week). Simultaneously, higher levels of obesity are associated with decreased overall Fitness (Violanti et al., 2017) and increased risk of cardiometabolic disease (Anderson et al., 2016).

It can be concluded that there is a relationship between body mass index and stress levels on the physical Fitness of police officers at the Central Java Regional Police.

An ideal BMI is an important indicator in supporting physical Fitness and physical readiness of police officers in carrying out operational tasks that require physical strength, speed, and endurance. Disproportionate body weight, especially in the overweight and obesity categories, has been shown to reduce aerobic capacity and increase the risk of metabolic disorders, which ultimately impact physical performance.

On the other hand, high and chronic work stress also has a significant impact on the physical and psychological health of police officers. A stressful work environment, irregular work schedules, and exposure to high-risk situations can lead to physiological disorders such as weight gain, hypertension, cardiovascular disorders, and physical exhaustion.

5. There is a relationship between stress levels, physical activity, and the Fitness of members of the Central Java Regional Police.

The study results indicate a correlation between stress levels and physical activity levels and the fitness of members of the Central Java Regional Police. This finding aligns with research conducted by Febyan et al. (2020), which indicates that police officers in Indonesia are more susceptible to various diseases, particularly those related to metabolic and cardiovascular disorders. This high vulnerability is influenced by several factors, such as irregular work patterns (shift work), high levels of job stress, low physical activity, and an unhealthy lifestyle. In line with this, Gerber et al. (2013) also found that individuals with high stress levels tend to have unhealthy lifestyle habits, low levels of physical activity, and decreased physical performance. Further support is shown by Nielsen et al. (2015), which states that poorly managed work stress can accelerate the decline in cardiovascular Fitness and aerobic capacity, especially in high-risk worker

groups such as security officers and military personnel.

Sherwood et al. (2019) argue that exposure to high-risk situations, such as handling social conflicts, serious crimes, and involvement in demonstrations, significantly increases the psychological stress experienced by police officers. Direct involvement in violent situations, facing death, and handling emergencies that require a rapid and appropriate response can trigger severe psychological stress disorders over the long term. This condition has the potential to lead to various mental health problems such as emotional exhaustion, burnout, anxiety disorders, and depression (Drew & Martin, 2021).

Excessive stress experienced by police officers can negatively impact their physical health. In the long term, chronic stress can trigger metabolic disorders such as metabolic syndrome, hypertension, weight gain, and impaired cardiovascular function (Rineer et al., 2021). Furthermore, police officers often exhibit a lifestyle that tends to be less physically active. Although the police profession is synonymous with tasks that require physical readiness and rapid response, in reality, many police officers are accustomed to static activities in their daily lives, such as sitting for hours in the office, standing guard at posts, or performing administrative tasks (Kukic, Dopsaj, Cvorovic, et al., 2018). Irregular shift work systems, high workloads, and limited time for regular exercise often exacerbate this lack of physical activity. In the long term, this habit can reduce physical Fitness and increase the risk of health problems, such as weight gain, decreased muscle mass, decreased cardiovascular capacity, and metabolic disorders such as hypertension, type 2 diabetes, and dyslipidemia (Bannigida et al., 2019; Mane & Berry, 2023).

It can be concluded that stress levels and physical activity significantly correlate with the Fitness of police officers in the Central Java Regional Police. High stress

levels, a sedentary lifestyle, and irregular work patterns contribute to decreased physical Fitness and increase the risk of health problems, both physical and mental. Long-term exposure to chronic stress can trigger various metabolic and cardiovascular diseases, while low physical activity worsens the Fitness of police officers.

6. There is a relationship between body mass index, stress levels, and physical activity and fitness among members of the Central Java Regional Police.

Based on the results of multiple linear regression analysis, it was found that body mass index (BMI), stress level, and physical activity simultaneously had a significant relationship with the level of physical Fitness of Polri members at the Central Java Regional Police. This finding indicates that physical Fitness is not only influenced by a single factor but is the result of a complex interaction between physical condition, psychological status, and lifestyle behavior. The relative contribution analysis found that BMI significantly contributed to physical Fitness, followed by stress level and physical activity.

Dawes et al. (2017) reported a significant correlation between physical Fitness, such as the graded exercise test, dominant hand grip strength, and body mass index, and performance in physical ability tests in highway patrol officers. These findings confirm that aspects of physical Fitness, particularly those related to body composition and cardiorespiratory capacity, play a significant role in the effectiveness of police operational duties. In other words, the more optimal an officer's physical condition, the greater their ability to complete field tasks that require endurance, strength, and rapid response (Dawes et al., 2022). Non-ideal body conditions in police officers, such as being overweight or obese, can negatively impact physical abilities and increase the risk of various diseases. This imbalance in body composition can potentially reduce performance in carrying out operational

duties that require optimal physical Fitness (Da Silva et al., 2014).

Furthermore, stress experienced by police officers can be triggered by various factors, including physical, social, psychological, political, and economic factors. Furthermore, sources of stress in the workplace, such as an unsupportive work environment, inadequate compensation, high workloads, potential risks while on duty, limited facilities, and monotonous work routines, all contribute to the emergence of occupational stress. These factors can originate from the surrounding environment, organizational structure, or individual characteristics (Wijayanti & Fauzi, 2020).

Research conducted by Schilling et al. (2020) shows that excessive stress can negatively impact the physical Fitness of police officers. High levels of work stress are known to contribute to an increased risk of metabolic syndrome (MetS) among police officers. A positive correlation between high stress levels and health parameters such as increased blood pressure and waist circumference demonstrates this. Accumulated stress that is not managed correctly can weaken overall physical condition, thus reducing the level of physical Fitness required to carry out police duties that require optimal physical readiness.

Lack of physical activity in police officers can increase the risk of being overweight. Police officers with low physical activity levels tend to exhibit higher body fat accumulation and elevated blood triglyceride levels. This suggests that low physical activity significantly contributes to an increased risk of obesity and can trigger metabolic and inflammatory disorders that negatively impact overall physical Fitness (de Souza et al., 2022).

Police officers frequently face a variety of risky working conditions that can negatively impact their physical and mental health, including exposure to chronic organizational and occupational stress

(Kukić et al., 2023). Rotating shifts, long hours, and sedentary work routines that involve minimal physical activity contribute to police officers' health risks (Allen et al., 2023). Some police officers lead physically inactive lifestyles, have irregular eating patterns, and have limited food choices while on duty. They also frequently work overtime and shift work, experience sleep disturbances, stress, and have higher rates of tobacco and alcohol consumption compared to the general population (Febyan et al., 2020; Garbarino & Magnavita, 2019; Smith et al., 2005).

Due to unhealthy lifestyles, police officers have a higher risk of obesity, hypertension, high cholesterol levels, diabetes, and cardiovascular disease (CVD) compared to the general public (Ramey et al., 2009; Violanti et al., 2013). On average, about 40% of officers are classified as obese, about 5% higher than the national average. 74% have early to stage two hypertension, and 27% have three or more CVD risk factors (Lockie et al., 2022).

This is in line with research conducted by Febyan et al. (2020), which showed that police officers in Indonesia are more susceptible to various diseases, particularly those related to metabolic and cardiovascular disorders. A combination of factors, such as irregular work patterns, high job stress, lack of physical activity, and unhealthy lifestyle habits, causes this vulnerability. This can certainly result in weight gain, which in the long term contributes to the emergence of obesity and metabolic syndrome, such as obesity.

Physical activity is a protective factor and a positive predictor of physical Fitness. Indonesian National Police (Polri) members who consistently engage in structured physical activity, such as fitness training or regular exercise, tend to have higher fitness scores. This aligns with the WHO (2020) view that adequate and regular physical activity contributes to increased cardiorespiratory capacity, muscle strength,

and a healthier body composition. The results of this study corroborate previous findings that BMI is an important indicator in assessing an individual's physical Fitness. BMI outside the ideal range, particularly in the overweight and obesity categories, is associated with decreased VO_2max capacity and increased cardiac workload during physical activity (Oforka et al., 2023).

In police duties requiring high mobility and physical readiness, a non-ideal BMI can be an obstacle to optimal performance.

It can be concluded that body mass index, stress levels, and physical activity simultaneously significantly influence the level of physical Fitness of Indonesian National Police (Polri) members at the Central Java Regional Police. BMI contributes most significantly to Fitness, followed by stress and physical activity. These findings emphasize that physical Fitness is influenced by physical condition and psychological and lifestyle factors. A suboptimal BMI, high work stress, and low physical activity can reduce physical Fitness and increase the risk of various health disorders such as metabolic syndrome and cardiovascular disease.

CONCLUSION

There is a relationship between body mass index, stress levels, physical activity, and the fitness level of members of the Central Java Regional Police.

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