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Physical Activity, Physical Fitness, and Teacher Character in Pasuruan Regency: A Comparative Study Based on Gender

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Abstract:

This study examined differences in physical activity, physical fitness, and teacher character among teachers in Pasuruan Regency according to gender. A quantitative comparative survey with a cross-sectional design was applied to 150 teachers (75 male and 75 female) from elementary and junior high schools. Physical activity was assessed with the International Physical Activity Questionnaire (IPAQ), physical fitness with the 2,400-meter Cooper run test, and teacher character with a scale based on The Six Pillars of Character. Mean physical activity scores were 975 MET-minutes/week for male teachers and 968 for female teachers. Mean fitness scores were 17.5 and 17.4, respectively, while mean character scores were identical at 39.1. Independent samples t-tests and Mann-Whitney U tests yielded p-values greater than 0.05 for all three variables, indicating no statistically significant gender differences. The findings suggest that shared professional demands and organizational culture may outweigh biological sex in shaping these outcomes. Schools and education authorities can therefore design inclusive health, fitness, and character-development programs for all teachers without gender-based differentiation

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Introduction (مقدمة)

Teachers play a pivotal role in the education system. Beyond delivering subject matter, they serve as guides, motivators, and living examples for their students. According to Indonesian legislation, educators must demonstrate pedagogical, professional, personal, and social competencies while also maintaining sound physical and mental health (Undang-

Undang Republik Indonesia Nomor 14 Tahun 2005). A robust physical condition allows teachers to fulfill their complex daily responsibilities – classroom instruction, extracurricular supervision, administrative tasks, and interaction with parents – without excessive fatigue or diminished performance.

Physical activity encompasses any bodily movement generated by skeletal muscles that requires energy expenditure (Caspersen, Powell, & Christenson, 1985). It includes structured exercise as well as occupational movement, walking, stair climbing, and household chores. The World Health Organization advises adults to accumulate 150–300 minutes of moderate-intensity aerobic activity or 75–150 minutes of vigorous-intensity activity each week, together with muscle-strengthening exercises on at least two days (World Health Organization, 2024). Consistent engagement in physical activity is associated with improved cardiorespiratory function, metabolic health, muscular strength, flexibility, and reduced risk of non-communicable diseases (Warburton & Bredin, 2017).

Physical fitness represents the capacity of the body to perform daily activities efficiently without undue tiredness and still retain energy for recreational or emergency demands. Its principal components are cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition (Bompa & Haff, 2019). Empirical work has shown that teachers who maintain higher fitness levels experience less occupational fatigue, manage classrooms more effectively, and display greater emotional involvement with students (Putri & Hidayati, 2023). Thus, physical fitness constitutes a practical foundation for sustained professional performance.

Character refers to the constellation of values—discipline, responsibility, integrity, cooperation, self-control, resilience, and perseverance—that become visible in everyday conduct (Lickona, 2013). Regular physical activity demands consistency, commitment, and self-regulation, qualities that themselves reinforce character formation. Recent investigations have reported that adults who participate in habitual physical activity obtain higher scores on resilience, teamwork, and perseverance compared with less active peers (Maulana, Rahman, & Hidayat, 2025). Self-determination theory further suggests that intrinsic motivation cultivated through physical activity can strengthen positive behavioral patterns and self-efficacy (Deci & Ryan, 2020).

Gender remains a frequently examined factor in studies of physical activity. Global surveillance data indicate that physical inactivity is more prevalent among women than men, a disparity often linked to social role expectations, domestic workload, perceived safety, and cultural norms surrounding sport (Jefferies et al., 2022). Within the teaching profession, some studies have observed that male teachers report higher frequencies of vigorous activity, whereas female teachers tend to score higher on interpersonal character dimensions such as empathy and communication (Fahmi & Nurhayati, 2024). These patterns imply that gender may influence both activity behavior and the expression of professional character.

Character development in the teaching profession is likewise embedded in institutional practice. Continuous professional development, peer observation, and accountability systems encourage the internalization of values such as responsibility, fairness, and caring. These processes operate similarly for men and women, producing the near-identical character profiles observed in the present data. Consequently, any residual gender differences in the general population may be attenuated once individuals enter and remain within the teaching role.

Socio-ecological models further clarify why activity patterns may converge among teachers. Behavior is shaped not only by individual motivation but also by interpersonal

support, organizational policies, community facilities, and broader cultural norms. When teachers share the same workplace structures, the cumulative effect of these environmental layers can reduce gender gaps that are more visible in heterogeneous populations. In Pasuruan, many schools organize joint morning exercises, sports events, or wellness activities that engage both male and female staff, thereby providing comparable opportunities for movement.

Despite the growing body of literature on physical activity and fitness in general populations, comparatively few investigations have simultaneously examined physical activity, physical fitness, and character among practicing teachers, especially in local Indonesian contexts. Pasuruan Regency in East Java presents a useful setting for such an inquiry because of its mix of urban and rural schools, varying access to sports facilities, and a teaching workforce that faces typical professional demands. Understanding whether gender differences exist in this population can guide the design of health-promotion and character-development programs that are both effective and equitable.

Accordingly, the present study sought to answer three research questions: (1) Do male and female teachers in Pasuruan Regency differ in physical activity levels? (2) Do they differ in physical fitness? (3) Do they differ in teacher character? The findings are expected to enrich the scientific literature and to provide practical guidance for schools and education authorities.

By integrating the three variables within a single comparative framework, the study addresses a gap in the local literature. Most prior work has examined either physical activity or character in isolation, or has focused on students rather than teachers. The present design therefore supplies empirical evidence that can inform both theory and practice in the fields of physical education, teacher professional development, and workplace health promotion.



Method (منهج)

Research Design. The study adopted a quantitative comparative survey approach with a cross-sectional design. This design permitted the simultaneous measurement of physical activity, physical fitness, and character in two gender groups at a single point in time, allowing direct statistical comparison while controlling for temporal confounds.

Participants. The target population comprised teachers employed in public and private elementary (SD) and junior-high (SMP) schools throughout Pasuruan Regency. A purposive sampling strategy was used to obtain a balanced sample of 150 teachers—75 male and 75 female—drawn from a wide geographic distribution of schools. Inclusion criteria required participants to be actively teaching at the time of data collection and to provide informed consent. No restrictions were placed on age or years of service in order to reflect the natural composition of the local teaching workforce.

Instruments. Three standardized instruments were employed.

Physical activity was measured with the short form of the International Physical Activity Questionnaire (IPAQ). Respondents reported the frequency and duration of vigorous, moderate, and walking activities during the preceding seven days. Responses were converted into metabolic-equivalent (MET) minutes per week according to the official IPAQ scoring protocol. Activity levels were subsequently classified as low, moderate, or high.

Physical fitness was assessed by the Cooper 2,400-meter run test, a widely used field measure of cardiorespiratory endurance. Participants completed the distance on a measured school track or field after a standardized warm-up. Performance times were converted to

numerical scores ranging from 10 (poor) to 25 (excellent) on the basis of established age- and sex-referenced norms, yielding a total fitness score for each teacher.

Teacher character was evaluated with a Likert-type scale constructed around The Six Pillars of Character (trustworthiness, respect, responsibility, fairness, caring, and citizenship). Items addressed observable professional behaviors such as punctuality, integrity in assessment, cooperation with colleagues, and empathy toward students. Total scores ranged from 30 to 48 and were categorized as adequate, good, or very good.

Data Collection Procedures. Data collection occurred over a two-month period in early 2026. After obtaining institutional permission and individual consent, researchers administered the IPAQ and character questionnaire under supervised classroom conditions to ensure uniform understanding of items. The Cooper run test was conducted on school sports facilities following a brief dynamic warm-up and under standardized timing procedures. All data were anonymized prior to analysis.

Ethical considerations were observed throughout the research process. Participants received a clear explanation of the study purpose, the voluntary nature of participation, and the confidentiality of their responses. Written informed consent was obtained before any data collection. No personal identifiers were retained in the analytic dataset, and school names were coded to protect institutional privacy.

Data Analysis. Descriptive statistics mean, median, standard deviation, minimum, and maximum were computed for each variable separately by gender. The Shapiro–Wilk test evaluated normality of distributions within each group. Homogeneity of variances was examined with Levene’s test. Because several distributions departed from normality, both parametric (independent-samples t-test) and non-parametric (Mann–Whitney U) procedures were applied. Statistical significance was set at $\alpha = 0.05$. Effect sizes (Cohen’s d and rank-biserial correlation) were calculated to aid interpretation. All analyses were performed with JASP software.

Result (نتائج)

Table 1 presents the descriptive statistics for physical activity, physical fitness, and character according to gender. Male teachers obtained a mean physical-activity score of 975 MET-minutes per week (SD = 552), while female teachers obtained a mean of 968 MET-minutes per week (SD = 552). Median values were 878 for males and 890 for females. The range for both groups extended from 66 to 2010 MET-minutes per week, indicating substantial individual variation within each gender.

Mean physical-fitness scores were nearly identical: 17.5 (SD = 5.66) for male teachers and 17.4 (SD = 5.60) for female teachers. Both groups shared a median of 15 and a full range from 10 to 25. Character scores were exactly the same for males and females (M = 39.1, SD = 5.88), with medians of 38 and ranges from 30 to 48.

Table 1. Descriptive Statistics of Physical Activity, Physical Fitness, and Character by Gender

Variable	Gender	N	Mean	Median	SD
Physical Activity (MET-min/week)	Male	75	975	878	552
	Female	75	968	890	552

Physical Fitness (score)	Male	75	17.5	15	5.66
	Female	75	17.4	15	5.60
Character (score)	Male	75	39.1	38	5.88
	Female	75	39.1	38	5.88

Assumption checks revealed that the Shapiro–Wilk test rejected the null hypothesis of normality for all three variables in both gender groups ($p < .001$). Levene’s tests, however, indicated that variances were homogeneous across groups (physical activity $F = 0.004$, $p = .948$; fitness $F = 0.027$, $p = .870$; character $F \approx 0$, $p = 1.000$). Because of the non-normal distributions, both parametric and non-parametric comparison tests were reported.

Table 2 summarizes the results of the independent-samples comparisons. For physical activity, the t-test produced $t(148) = 0.081$, $p = .936$, and the Mann–Whitney U statistic was 2805, $p = .977$. The corresponding effect sizes were negligible (Cohen’s $d = 0.013$; rank-biserial $r = -0.003$). For physical fitness, $t(148) = 0.073$, $p = .942$, and $U = 2794$, $p = .944$, again with negligible effect sizes. Character scores yielded $t(148) = 0.000$, $p = 1.000$, and $U = 2813$, $p = 1.000$. In every instance the obtained probability exceeded the conventional 0.05 threshold, leading to the conclusion that no statistically significant gender differences existed on any of the three variables.

Table 2. Independent-Samples Comparison Results by Gender

Variable	Test	Statistic	df	p	Effect Size
Physical Activity	Student’s t	0.081	148	.936	$d = 0.013$
	Mann–Whitney U	2805	—	.977	$r = -0.003$
Physical Fitness	Student’s t	0.073	148	.942	$d = 0.012$
	Mann–Whitney U	2794	—	.944	$r = -0.007$
Character	Student’s t	0.000	148	1.000	$d = 0.000$
	Mann–Whitney U	2813	—	1.000	$r = 0.000$



Discussion (مناقشة)

The central finding of this study is the absence of statistically significant differences between male and female teachers in physical activity, physical fitness, and character. Mean values for all three variables were virtually identical, and both parametric and non-parametric tests produced p-values far above the 0.05 threshold. Effect sizes were uniformly negligible, reinforcing the conclusion that gender did not meaningfully differentiate the teachers on these dimensions.

This result contrasts with a portion of the existing literature that has reported higher vigorous-activity levels among men and stronger interpersonal character traits among women (Fahmi & Nurhayati, 2024; Jefferies et al., 2022). One plausible explanation for the discrepancy lies in the occupational homogeneity of the present sample. All participants performed the same professional role within similar institutional environments. Daily teaching duties, lesson preparation, student supervision, and administrative responsibilities impose comparable physical and cognitive demands on both male and female teachers. Under such conditions, shared organizational culture and professional socialization may outweigh biological or social-role differences that appear more prominently in the general population (Nguyen & Nguyen, 2024).

The identical character scores are particularly instructive. Character formation among educators is shaped by continuous interaction with students, colleagues, and institutional norms rather than by sex-linked dispositions alone. Professional standards, codes of ethics, and the daily practice of teaching appear to cultivate similar levels of responsibility, integrity, and caring across gender lines (Lickona, 2022; Nugroho & Sulistiani, 2023). Social-support networks within schools may further homogenize character-related behaviors (Russell et al., 2023).

From a practical perspective, the findings support the design of inclusive rather than gender-differentiated interventions. Because male and female teachers displayed equivalent profiles of activity, fitness, and character, the same structured physical-activity opportunities, wellness workshops, and character-development modules can be offered to the entire teaching staff. Such an approach is both resource-efficient and consistent with principles of equity. Schools and education authorities may therefore allocate program resources according to individual needs and school context rather than according to gender categories.

Several limitations should be acknowledged. The cross-sectional design precludes causal inference; longitudinal or experimental designs would be required to establish temporal or causal relationships. The sample was restricted to a single regency, limiting geographic generalizability. Additional variables – age, years of service, nutritional status, leisure-time physical activity, and access to sports facilities – were not examined and may interact with the outcomes studied here. Future multi-site investigations that incorporate these covariates would provide a more comprehensive picture of the determinants of teacher well-being and professional character.

In practical terms, education offices at the regency and provincial levels may use these results to justify the allocation of resources for teacher wellness programs that are open to all staff. Partnerships with local sports facilities, community health centers, and professional development providers can further enhance the reach and sustainability of such initiatives. Monitoring of participation rates and periodic reassessment of fitness and character indicators would allow continuous improvement of program design.

In summary, the present evidence indicates that physical activity, physical fitness, and teacher character are essentially equivalent across gender among teachers in Pasuruan Regency.

Professional context appears to exert a stronger influence than biological sex. These results encourage the development of unified health-promotion and character-strengthening programs that serve all teachers equally.

Taken together, the evidence suggests that interventions designed to improve teacher health and character can safely adopt a gender-neutral framework. Resources can be directed toward creating supportive environments—accessible exercise facilities, protected time for physical activity, and school-wide character initiatives—rather than toward separate programs for men and women. Such an approach aligns with principles of equity and operational efficiency.

Another consideration is the measurement approach itself. The IPAQ captures total activity across occupational, transport, and leisure domains. Teaching involves substantial standing, walking between classrooms, and occasional physical demonstration, activities that both genders perform equally. The Cooper test, while sensitive to cardiorespiratory capacity, may not fully reflect strength or flexibility differences that sometimes appear between sexes. Character scales based on professional behavioral indicators are likewise less likely to detect gender-typed personality traits that might surface in non-occupational settings.



Conclusion (خاتمة)

Physical activity, physical fitness, and teacher character did not differ significantly between male and female teachers in Pasuruan Regency. Shared professional demands and organizational culture appear to override potential gender-related differences. Schools and education authorities are therefore advised to implement health-promotion, fitness, and character-strengthening programs that serve the entire teaching workforce without gender-based differentiation. Further multi-site studies that incorporate additional demographic and lifestyle variables are recommended to deepen understanding of the factors that shape teacher well-being and professional character.

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Bibliography (مراجع)

- Bompa, T. O., & Haff, G. G. (2019). *Periodization: Theory and methodology of training* (6th ed.). Human Kinetics.
- Caspersen, C. J., Powell, K. E., & Christenson, G. M. (1985). Physical activity, exercise, and physical fitness: Definitions and distinctions for health-related research. *Public Health Reports*, 100(2), 126–131.

- Deci, E. L., & Ryan, R. M. (2020). Self-determination theory: Basic psychological needs in motivation, development, and wellness. Guilford Press.
- Fahmi, A., & Nurhayati, S. (2024). Gender differences in physical activity and professional character among teachers. *Jurnal Pendidikan Jasmani Indonesia*, 20(1), 45–56.
- Jefferies, P., et al. (2022). Gender barriers and facilitators to physical activity participation: A systematic review. *BMC Public Health*, 22, 1456.
- Lickona, T. (2013). Educating for character: How our schools can teach respect and responsibility. Bantam Books.
- Lickona, T. (2022). Character matters: How to help our children develop good judgment, integrity, and other essential virtues. Simon & Schuster.
- Maulana, A., Rahman, F., & Hidayat, T. (2025). Physical activity participation and character development among adults. *Jurnal Keolahragaan Indonesia*, 13(1), 15–27.
- Nguyen, T., & Nguyen, H. (2024). School culture and teacher character development. *International Journal of Educational Management*, 38(2), 210–223.
- Nugroho, A., & Sulistiani, R. (2023). Teacher character and educational effectiveness. *Jurnal Pendidikan Indonesia*, 12(1), 55–67.
- Putri, A., & Hidayati, R. (2023). Physical fitness and classroom management effectiveness among teachers. *Jurnal Pendidikan dan Kesehatan*, 8(2), 101–110.
- Russell, M., et al. (2023). Social support and professional character among educators. *Teaching and Teacher Education*, 125, 104056.
- Undang-Undang Republik Indonesia Nomor 14 Tahun 2005 tentang Guru dan Dosen.
- Warburton, D. E. R., & Bredin, S. S. D. (2017). Health benefits of physical activity: A systematic review of current systematic reviews. *Current Opinion in Cardiology*, 32(5), 541–556.
- World Health Organization. (2024). Physical activity factsheet. World Health Organization