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Physical Activity, Physical Fitness, and Teacher Character in Pasuruan: A Comparative Study Based on Elementary and Junior High School Levels

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Abstract:
This study examined differences in physical activity, physical fitness, and teacher character among educators in Pasuruan according to teaching level (elementary versus junior high school). Teachers serve as instructors, classroom managers, and role models; therefore, variations in student characteristics across levels may shape teachers' activity patterns, fitness status, and professional character. A quantitative comparative survey design was employed with 150 teachers (75 elementary and 75 junior high) selected through proportionate stratified random sampling. Physical activity was assessed with the International Physical Activity Questionnaire Short Form, physical fitness with a 2,400-meter run test, and teacher character with a six-pillar character scale. Data were analyzed using descriptive statistics, normality and homogeneity tests, and the Mann–Whitney U test. Results indicated no statistically significant differences between the two groups for physical activity ($p = 0.871$), physical fitness ($p = 0.944$), or teacher character ($p = 1.000$). Teaching level therefore does not appear to be a primary differentiating factor. Integrated programs promoting physical activity, fitness, and character can be designed jointly for elementary and junior high school teachers. Future research should consider age, years of service, lifestyle, health status, and work environment.

Introduction (مقدمة)

Teachers occupy a central position within the education system because they simultaneously manage learning processes, construct classroom climates, and model desirable behavior for students. Darling-Hammond (2000) established that teacher quality ranks among the most powerful predictors of student achievement. Educators who combine professional competence, robust personal character, and adequate physical health are better positioned to sustain motivating and orderly learning environments. OECD (2019) further documented that the quality of the teaching force exerts a direct influence on curriculum enactment and the attainment of foundational competencies.

Indonesian legislation (UU No. 14 Tahun 2005) mandates that teachers demonstrate four complementary competencies: pedagogical, professional, social, and personal. Personal competence encompasses integrity, professional ethics, and exemplary conduct, while social competence requires effective interaction with learners, colleagues, parents, and the wider community. These competencies are not independent of physical condition; health and fitness constrain the consistency with which teachers can enact their professional roles across long school days.

Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure (Caspersen, Powell, & Christenson, 1985). When performed regularly, such activity elevates physical fitness—the capacity to carry out daily tasks with sufficient energy while retaining reserves for unexpected physical or mental demands (Corbin & Lindsey, 2007). Fitness comprises health-related elements (cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition) as well as skill-related elements (balance, coordination, agility, and power).

Sallis et al. (2012) observed that teachers who maintain good physical fitness cope more successfully with the multifaceted demands of schooling, including classroom management, lesson preparation, assessment, and intensive interpersonal interaction. Regular physical activity also contributes to psychological stability, reduces occupational stress, sharpens concentration, and helps sustain energy across the working day. These advantages are especially salient for elementary and junior high school teachers, whose students differ substantially in developmental characteristics and whose occupational movement patterns consequently diverge.

Elementary teachers typically engage children aged 6–12 years who require intensive guidance and concrete, creative, and emotionally responsive instruction. Junior high teachers, by contrast, work with early adolescents who are becoming more critical, autonomous, and socially complex, and who therefore need more sophisticated communication and management strategies (Piaget, 1972; Santrock, 2018). These developmental contrasts can shape the frequency and intensity of teachers' daily movement, the types of physical load they experience, and the fitness levels necessary to sustain effective interaction. Elementary teachers may move more frequently within the classroom to assist individual learners, whereas junior high teachers may expend greater cognitive and emotional energy facilitating discussions, laboratory sessions, or project-based learning that place different demands on stamina.

Character constitutes an equally critical dimension of professional practice. Lickona (1991) argued that character education involves not merely the transmission of moral knowledge but the cultivation of consistent habits and attitudes. Teacher character—encompassing discipline, responsibility, honesty, empathy, and integrity—functions as a living model for students. Teachers who are physically fit are more likely to display positive character consistently because adequate energy and physiological capacity support active engagement in both instructional and relational tasks.

The World Health Organization (2020) underscores that sufficient physical activity lowers the risk of non-communicable disease, enhances cognitive capacity, and supports mental health. Complementary empirical work indicates that physically active teachers report lower stress, higher job satisfaction, and stronger classroom-management skills, reinforcing the linkage between fitness and professional character (Ratey & Loehr, 2011; Singh et al., 2012).

Pasuruan hosts a sizable teaching workforce, with more than one thousand elementary teachers and approximately three hundred and fifty junior high school teachers (Kemendikbud, 2024). This scale provides a suitable setting for a comparative examination of physical activity, fitness, and character across teaching levels. Prior research has tended to concentrate on student fitness or on health-sector personnel; systematic inquiry into teachers as the primary agents of

education remains comparatively limited. The present study therefore investigated whether teaching level (elementary versus junior high) is associated with measurable differences in physical activity, physical fitness, and professional character among teachers in Pasuruan.

Specifically, the study addressed three research questions: (1) Do elementary and junior high school teachers in Pasuruan differ significantly in physical activity? (2) Do they differ significantly in physical fitness? (3) Do they differ significantly in professional character? The corresponding objectives were to quantify and test these potential differences and to derive implications for integrated teacher-development programs.

Curriculum reforms associated with the Kurikulum Merdeka further elevate the importance of teacher fitness and character. Capaian Pembelajaran documents emphasize not only movement skills but also conceptual understanding of physical activity and the formation of positive attitudes toward lifelong physical engagement. Teachers who themselves maintain adequate fitness and consistent character are better positioned to internalize and transmit these values. Conversely, teachers experiencing chronic fatigue or low fitness may struggle to demonstrate movements, sustain active learning environments, or model the disciplined habits the curriculum seeks to cultivate.

Within the broader field of physical education research, attention has increasingly turned toward the health and character of teachers themselves rather than exclusively toward student outcomes. Mulyana et al. (2024) demonstrated that structured physical activity contributes to healthy lifestyle habits, elevated fitness, and the reinforcement of positive character traits such as discipline, consistency, and self-control. When teachers embody these traits, they function as living models that students can observe and emulate in daily school life.

Method (منهج)

A quantitative comparative survey design was adopted. The research was conducted across public and private elementary and junior high schools in Pasuruan Regency, East Java. The target population comprised all elementary and junior high school teachers registered in the regency. From this population a sample of 150 teachers—75 elementary and 75 junior high—was selected by proportionate stratified random sampling, ensuring balanced representation of both teaching levels and gender distribution within each stratum.

Three instruments were employed. Physical activity was measured with the International Physical Activity Questionnaire Short Form (IPAQ-SF). Respondents reported the frequency and duration of vigorous, moderate, and walking activities during the preceding seven days; responses were converted into total MET-minutes per week and classified into low, moderate, or high activity categories following standard IPAQ scoring protocols (Craig et al., 2003). Physical fitness was assessed by a standardized 2,400-meter run test conducted on a measured track under uniform environmental conditions. Completion time was converted into a numerical score (range 2–5) and categorized as poor, moderate, good, or excellent according to established Indonesian adult norms. Teacher character was measured with a 12-item Likert-type scale grounded in six character pillars—trustworthiness, respect, responsibility, fairness, caring, and citizenship. Each pillar was represented by two items rated on a four-point scale; total scores were subsequently classified as adequate, good, or very good.

Data collection proceeded in three coordinated stages. First, the IPAQ-SF and character questionnaire were distributed and completed under researcher supervision to minimize missing

responses. Second, the 2,400-meter run was administered in small groups with standardized warm-up, timing, and cool-down procedures. Third, demographic information (gender, school type, and teaching level) was verified against official records. All participants provided informed consent prior to data collection.

Descriptive statistics (means, medians, standard deviations, minima, and maxima) summarized the distribution of each variable within teaching-level groups. Shapiro–Wilk tests evaluated normality and Levene's tests assessed homogeneity of variance. Because all three variables departed from normality in both groups ($p < .001$), the non-parametric Mann–Whitney U test was selected to compare elementary and junior high school teachers. Rank-biserial correlations served as effect-size estimates. The conventional significance threshold of $\alpha = .05$ was applied throughout.

Table 3 summarizes the instruments, scoring procedures, and interpretive categories employed in the study. The IPAQ-SF has demonstrated acceptable reliability and validity across diverse cultural settings (Craig et al., 2003). The 2,400-meter run is a widely used field test of cardiorespiratory endurance among Indonesian adults and yields readily interpretable categorical classifications. The character scale was constructed to align with nationally recognized character-education frameworks and was pilot-tested for clarity and internal consistency prior to full administration.

Result (نتائج)

Table 1 presents descriptive statistics for physical activity, physical fitness, and teacher character by teaching level. Mean physical activity was 966.4 MET-min/week among elementary teachers and 977.0 MET-min/week among junior high teachers. Mean fitness scores were 17.4 and 17.5, respectively, while mean character scores were identical at 39.1. Median values and standard deviations were likewise closely aligned, indicating substantial overlap in the distributions of the two groups.

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

Variable	Group	Mean	Median	SD
Physical Activity (MET)	Elementary	966.4	878.0	547.27
	Junior High	977.0	890.0	556.53
Physical Fitness	Elementary	17.4	15.0	5.60
	Junior High	17.5	15.0	5.66
Teacher Character	Elementary	39.1	38.0	5.88
	Junior High	39.1	38.0	5.88

Shapiro–Wilk tests confirmed that physical activity, fitness, and character scores were non-normally distributed in both groups (all $p < .001$). Levene's tests indicated homogeneity of variance across teaching levels (physical activity $p = .863$; fitness $p = .870$; character $p = 1.000$). Consequently, Mann–Whitney U tests were performed. Table 2 summarizes the results.

Table 2. Mann–Whitney U Test Results for Differences by Teaching Level

Variable	U	p-value	Effect Size (r)	Decision
Physical Activity	2769	0.871	0.015	Not significant

Physical Fitness	2794	0.944	0.007	Not significant
Teacher Character	2813	1.000	0.000	Not significant

None of the three comparisons reached statistical significance. Effect sizes (rank-biserial correlations) approached zero, indicating that the observed differences possessed neither statistical nor practical importance. The null hypotheses of no difference between elementary and junior high school teachers were therefore retained for physical activity, physical fitness, and teacher character

Discussion (مناقشة)

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Conclusion (خاتمة)

This study concludes that elementary and junior high school teachers in Pasuruan do not differ significantly in physical activity, physical fitness, or professional character. Mann–Whitney U tests produced p-values of 0.871, 0.944, and 1.000, respectively—all substantially above the conventional threshold of 0.05—and associated effect sizes approached zero. Teaching level therefore does not constitute a primary differentiating factor for the three outcomes examined. Schools and education authorities may design unified programs that simultaneously promote physical activity, fitness development, and character strengthening for teachers at both levels. Subsequent research is advised to examine age, length of service, lifestyle, health condition, and work environment as potential influences on these outcomes, preferably employing longitudinal designs and objective measurement of physical activity.

Practical implications extend beyond program design. Education offices at the district level can allocate wellness resources without the administrative complexity of level-specific targeting. Joint professional-learning communities that mix elementary and junior high teachers may also strengthen cross-level collaboration and shared professional identity. At the same time, the finding that overall fitness scores clustered in the moderate range (means near 17.5 on a scale whose maximum is 25) signals that absolute levels of fitness remain suboptimal for a substantial proportion of teachers. Uniform programs should therefore aim not merely at equality but at elevating the absolute fitness of the entire teaching workforce.

With respect to character, the six-pillar framework employed here emphasizes universal professional virtues rather than pedagogically differentiated behaviors. Trustworthiness, respect, responsibility, fairness, caring, and citizenship are expected of every certified teacher irrespective of the age of the learners they serve. Institutional socialization processes—pre-service education, certification requirements, and in-service mentoring—therefore tend to produce convergent character profiles. The identical mean scores of 39.1 observed for both groups are consistent with this institutional homogenization interpretation.

Moreover, the IPAQ-SF captures total weekly activity rather than activity performed exclusively during instructional hours. Teachers may compensate for relatively sedentary classroom periods by engaging in household chores, commuting by walking or cycling, or participating in community sports. Such compensatory behaviors would tend to equalize total MET-minutes across teaching levels, consistent with the near-identical means reported in Table 1. Future studies that isolate occupational versus leisure-time activity could test this compensatory hypothesis more directly.

Empirical patterns observed in the present sample also resonate with broader findings on teacher well-being. Studies examining occupational stress among educators have repeatedly shown that workload volume, administrative demands, and interpersonal climate exert stronger effects on physical and psychological health than the specific grade band taught (Biddle & Asare, 2011; Hargreaves & Fullan, 2012). In Pasuruan, elementary and junior high teachers often share similar class sizes, similar lengths of instructional day, and similar extracurricular obligations; these commonalities may override developmental differences in student characteristics when activity and fitness are measured at the group level.

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