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Sports Facility Accessibility, Sports Awareness, and Physical Activity: A Path Analysis of Physical Fitness among Senior High School Students in Batu City

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Abstract:
Physical activity and physical fitness among Indonesian adolescents, including those in Batu City, remain at concerning levels, warranting serious attention from educators and school sport policymakers. This study examines how sports facility accessibility and sports awareness shape physical activity and physical fitness among senior high school students in Batu City, and further investigates whether sports awareness functions as a mediating pathway linking facility accessibility to physical activity. A cross-sectional correlational survey was conducted involving 701 public senior high school and vocational school students in Batu City, recruited through purposive sampling based on school representativeness. Data were gathered with a six-point Likert questionnaire that met validity (Pearson r = 0.681–0.798) and reliability (Cronbach's Alpha = 0.834–0.893) requirements, then analyzed using path analysis in IBM SPSS Statistics. Findings show that sports facility accessibility significantly shapes sports awareness (β = 0.143; p = 0.000) but does not directly affect physical activity (β = 0.003; p = 0.921); conversely, sports awareness strongly drives physical activity (β = 0.673; p = 0.000) and fully mediates the pathway from accessibility to physical activity. Together, the three predictors explain 51.0% of the variance in physical fitness, with physical activity as the strongest contributor (β = 0.689). This study contributes an integrated path model that clarifies the mechanism by which an environmental factor (facility accessibility) and a psychological factor (sports awareness) jointly shape adolescents' physical activity and fitness, a combination rarely tested simultaneously within a single relational model in the Indonesian senior high school context. Practically, because facility accessibility alone yields a negligible direct gain in physical activity, schools and local governments should prioritize sustained sports-awareness programs alongside facility maintenance to convert access into an active lifestyle.

Introduction (مقدمة)

Sports occupy a strategic position in human life because they contribute to the maintenance of physical health, mental stability, and social connectedness. Husdarta (2011) asserts that the value of sport lies not merely in achievement outcomes, but also in its contribution to quality of life through the strengthening of physical fitness and individual character. During adolescence, engagement in physical activity becomes an urgent need because this phase is marked by physical and psychological changes that tend to shape behavioral patterns that persist into adulthood. Consequently, Physical Education, Sports, and Health (PJOK) at the senior high school level is not merely a subject, but a vehicle for forming an active lifestyle among the younger generation.

Conceptually, Caspersen et al. (1985) distinguish physical activity as any bodily movement that involves energy expenditure, whereas exercise is a planned and repeated form of physical activity aimed at maintaining fitness. The World Health Organization (2020) recommends moderate-to-vigorous intensity physical activity of at least 60 minutes per day for children and adolescents to support cardiovascular, musculoskeletal, and mental health. Unfortunately, field achievements remain far from these recommendations: data from the Indonesian Health Survey indicate that approximately half of adolescents aged 10–19 years are classified as physically inactive, a condition that has direct implications for the declining physical fitness of the younger generation.

The low level of students' physical fitness has also been confirmed by several local studies. Hisbunnahar et al. (2022) found that the physical fitness of students at SMA Negeri 1 Lawang was only in the moderate category, influenced by physical activity patterns, exercise habits, and the environment in which students are active. Similar findings were reported by Manado and Mandagi (2024) among students of SMA Negeri 2 Tondano, the majority of whom fell into the low fitness category. Both studies indicate that the problem of students' physical fitness is multifactorial and requires a more comprehensive approach to address.

One environmental factor suspected to play a role is the accessibility of sports facilities and infrastructure. Soepartono (2000) defines sports facilities and infrastructure as the entire physical facilities supporting sports activities, while Lutan (2001) emphasizes that accessibility is not merely a matter of availability, but also of travel distance, quality, safety, comfort, and opportunity for utilization. Facilities that are available but difficult to reach or unfit for use have the potential to reduce interest in exercise. This is reinforced by Davison and Lawson (2006), who found a positive relationship between proximity to sports facilities and adolescents' physical activity levels, as well as Sallis et al. (2012), who positioned a physical activity-friendly environment as one of the main determinants of adolescents' active behavior.

In the Indonesian context, the issue of sports facility accessibility remains a distinct challenge. Erik et al. (2023) reported low student satisfaction with the availability of sports facilities at SMA Negeri 1 Sekadau Hilir, while Azhari (2024) noted that the feasibility of school sports facilities in Takalar was only 58.87 percent—falling into the moderate category. Furthermore, Aji, Rosidi, and Aswara (2023) demonstrated that sports facility accessibility is significantly related to active sports participation among high school students in Indonesia, affirming the role of facilities as an environmental factor shaping sports behavior.

In addition to environmental factors, sports awareness as an internal factor is also believed to shape students' active behavior. Husdarta (2011) explains sports awareness as a psychological condition that encourages a person to make sport part of their lifestyle because they understand its benefits for health. Students with high awareness tend to utilize available facilities more optimally, whereas students with low awareness may remain passive even when facility access is adequate. The study by Aji et al. (2023) also confirmed that sports awareness is significantly

related to students' active sports participation, strengthening the assumption that awareness acts as a psychological bridge between environment and behavior.

Theoretically, there are strong grounds for positioning sports awareness rather than facility accessibility as the more proximal determinant of behavior. Within the social ecological model, environmental attributes such as facility accessibility are distal, structural conditions that create the opportunity for activity but do not by themselves compel behavior (Sallis et al., 2012); they must first be perceived, valued, and internalized before they can be translated into action. The Theory of Planned Behavior (Ajzen, 1991) and social cognitive theory (Bandura, 1986) explain this internalization process: an individual's beliefs, attitudes, and self-efficacy regarding a behavior mediate the influence of external, environmental cues on the behavior itself. Applied to the present context, sports awareness represents precisely this cognitive-motivational appraisal, so that facility accessibility is expected to shape physical activity indirectly, by first fostering awareness, rather than exerting a strong direct effect. This theoretical reasoning underlies the present study's hypothesis that sports awareness mediates the relationship between sports facility accessibility and physical activity, rather than merely correlating with both.

Batu City actually possesses geographical and institutional capital that supports an active lifestyle culture, ranging from a cool climate to the distribution of sports facilities across various areas. However, the equity and level of accessibility of these facilities are not necessarily experienced equally by all students, given differences in residential location, school conditions, and individual levels of sports awareness. To the best of the author's knowledge, studies that integrate sports facility accessibility, sports awareness, physical activity, and physical fitness into a single comprehensive relational model remain limited, particularly among the senior high school student population in Batu City. Previous studies have generally examined the relationships among these variables partially, so the mediating roles among variables have not been widely revealed.

Based on this gap, the present study aims to examine: (1) the effect of sports facility accessibility on sports awareness; (2) the effect of sports facility accessibility on physical activity, both directly and through sports awareness; and (3) the effects of sports facility accessibility and sports awareness on physical fitness, both directly and through physical activity. Seven hypotheses are proposed to answer these objectives, encompassing the direct effects among variables as well as the mediating role of sports awareness in the relationship between sports facility accessibility and physical activity. The results of this study are expected to provide an empirical foundation for the formulation of policies and programs to increase physical activity and student fitness, both at the school and local government levels.

Method (منهج)

Research Design

This study employed a quantitative approach with a descriptive-correlational design through a cross-sectional survey method. Path analysis was selected to examine the direct and indirect effects among the four research variables, namely Sports Facility Accessibility (X1), Sports Awareness (X2), Physical Activity (X3), and Physical Fitness (Y), while also revealing the contribution of each path to the dependent variable.

Setting, Population, and Sample

The research was conducted at four public senior high schools in Batu City, East Java, namely SMAN 1 Batu, SMAN 3 Batu, SMKN 1 Batu, and SMKN 3 Batu, selected with consideration of the representation of both SMA and SMK levels. The research population

comprised all active students at the four schools, with a sample of 701 respondents recruited through purposive sampling based on the criteria: (1) registered as an active student at one of the research location schools, (2) willing to complete the questionnaire completely and honestly, and (3) present at the time of data collection. Purposive sampling was chosen because no single administrative sampling frame listing all students across the four schools was available to permit random selection, and because the research objective required deliberate representation of both the SMA and SMK tracks, which differ in curriculum emphasis and typical facility provision; a purely random or convenience procedure could not guarantee this balance. Proportional attention was given to drawing respondents from each of the four schools and from both school levels so that the resulting sample would approximate the composition of the target population, thereby supporting the reasonableness of generalizing findings to public senior high school students in Batu City, while generalization beyond this population (e.g., to private schools or other regions) should remain cautious. The characteristics of the research sample are presented in Table 1.

Table 1. Characteristics of the Research Sample

Characteristic	Description
School level	Public SMA and SMK in Batu City
Age range	14–19 years
Gender	Male and female
Hobby category	Sports and non-sports
Sample size	701 students

Variables and Operational Definitions

This study involved one independent variable (Sports Facility Accessibility), two mediating variables (Sports Awareness and Physical Activity), and one dependent variable (Physical Fitness). The operational definitions and indicators of each variable are summarized in Table 2.

Table 2. Operational Definitions and Indicators of Research Variables

Variable	Operational Definition	Indicators	Items
Sports Facility Accessibility (X1)	The level of ease with which students can access and utilize sports facilities at school and around their place of residence	Availability, distance accessibility, condition/feasibility, safety-comfort, opportunity for utilization	1–5
Sports Awareness (X2)	Students' understanding, attitude, and motivation regarding the importance of regular exercise for health	Knowledge of benefits, positive attitude, motivation, commitment to an active lifestyle	6–10
Physical Activity (X3)	Frequency, intensity, and duration of students' bodily movement in daily life	Frequency/week, duration/session, type of activity, consistency	11–15
Physical Fitness (Y)	Students' bodily capacity to perform daily activities without excessive fatigue	Cardiorespiratory endurance, muscular strength, flexibility, body composition, stamina	16–20

Research Instrument

Data were collected using a closed-ended questionnaire containing 20 positive statements, evenly divided into five items per variable. Each item was rated using a six-point Likert scale without a midpoint (forced-choice) to avoid respondents' tendency to choose neutral answers. The scoring format of the instrument is presented in Table 3.

Table 3. Six-Point Likert Scale and Its Interpretation

Score	Response Category	Interpretation
6	Strongly Agree	Very Positive
5	Agree	Positive
4	Somewhat Agree	Tend to be Positive
3	Somewhat Disagree	Tend to be Negative
2	Disagree	Negative
1	Strongly Disagree	Very Negative

With five items per variable and a score range of 1–6, each variable has a total score range of 5 to 30. The overall instrument (20 items) ranges from 20 to 120.

The Physical Activity and Physical Fitness items were deliberately designed as self-report perceptual measures rather than objective measures (e.g., accelerometry or standardized fitness tests) because the large sample (N = 701) spread across four schools made objective assessment logistically infeasible within the study timeframe. To support content adequacy, each item was derived directly from the established conceptual indicators in Table 2: Physical Activity items sampled frequency, duration, type, and consistency of movement following Caspersen et al.'s (1985) definition, while Physical Fitness items sampled cardiorespiratory endurance, muscular strength, flexibility, body composition, and stamina, consistent with standard components of health-related fitness. This indicator-to-item mapping was reviewed for content relevance prior to field testing, and the subsequent Pearson item-total correlations and Cronbach's Alpha values (Table 4) provide empirical support that the items coherently represent each intended construct. Nonetheless, because self-reported activity and fitness may diverge from objectively measured values, this measurement choice is treated as a limitation of the study, discussed further below.

Validity and Reliability Testing of the Instrument

Item validity was tested using the Pearson Product Moment correlation, with the criterion that an item is valid if the calculated r exceeds the table r. At N = 701 and a 5% significance level, the table r value used was 0.074. Instrument reliability was tested using Cronbach's Alpha coefficient, with a threshold of $\alpha > 0.70$ for the reliable category. A summary of the instrument testing results is displayed in Table 4.

Table 4. Summary of Instrument Validity and Reliability Test Results

Variable	r Range	r Table	Cronbach's α	Status
Accessibility (X1)	0.681–0.725	0.074	0.834	Valid & Reliable
Sports Awareness (X2)	0.712–0.769	0.074	0.871	Valid & Reliable
Physical Activity (X3)	0.761–0.798	0.074	0.893	Valid & Reliable
Physical Fitness (Y)	0.748–0.779	0.074	0.862	Valid & Reliable

Data Analysis Techniques

Data analysis was conducted in stages using IBM SPSS Statistics, including: (1) descriptive analysis to map the central tendency and distribution of scores for each variable; (2) residual

normality testing with the One-Sample Kolmogorov-Smirnov (Lilliefors correction); (3) Pearson correlation testing to examine the strength of relationships among variables prior to further analysis; (4) path analysis through three hierarchical regression models to estimate direct and indirect path coefficients; and (5) mediation testing following the Baron and Kenny (1986) criteria, which concludes full mediation when the direct effect of the independent variable on the dependent variable becomes non-significant after the mediator is entered into the model, while the indirect path remains significant.

Result (نتائج)

Descriptive Statistics

An overview of the score distributions of the four research variables from 701 respondents is presented in Table 5. Overall, the Sports Awareness score (M = 22.18) was higher than the Physical Activity score (M = 20.47), indicating a gap between students' understanding/motivation and the realization of their daily active behavior.

Table 5. Descriptive Statistics of Research Variables (N = 701)

Variable	Mean	Median	Mode	SD	Min	Max
Accessibility (X1)	21.34	22.00	23	3.87	5	30
Sports Awareness (X2)	22.18	23.00	24	4.12	6	30
Physical Activity (X3)	20.47	21.00	21	4.58	5	30
Physical Fitness (Y)	21.62	22.00	22	4.24	5	30

The distribution of Sports Facility Accessibility score categories (Table 6) shows that the majority of students (42.51%) rated sports facilities in the high category, followed by the moderate category (34.38%). Only a small proportion of respondents (1.71%) perceived accessibility as very low, indicating that sports facilities at the research location schools are generally quite adequate.

Table 6. Distribution of Sports Facility Accessibility Score Categories (X1)

Score Interval	Category	f	%
5–12	Very Low	12	1.71
13–17	Low	58	8.27
18–22	Moderate	241	34.38
23–27	High	298	42.51
28–30	Very High	92	13.12
Total	–	701	100.00

Assumption Testing

Residual normality testing on the three path equation models produced significance values below 0.05 (Table 7), which strictly indicates that the residuals are not normally distributed. However, given the very large sample size (N = 701 ≫ 30), this assumption can be relaxed by referring to the Central Limit Theorem, which guarantees that the sampling distribution of regression estimators approaches normality in large samples (Field, 2018; Hair et al., 2019), so that path analysis remains statistically justifiable.

Table 7. Residual Normality Test Results (Kolmogorov-Smirnov)

Equation Model	Asymp. Sig.	Monte Carlo Sig.	Decision
Model I: X1 → X2	0.009	0.008	Accepted (CLT)
Model II: X1, X2 → X3	0.000	0.000	Accepted (CLT)
Model III: X1, X2, X3 → Y	0.011	0.010	Accepted (CLT)

Pearson correlation test results (Table 8) show that all pairs of variables are positively and significantly correlated at the 1% level. The strongest correlation occurred between Physical Activity and Physical Fitness (r = 0.689), followed by Sports Awareness with Physical Activity (r = 0.674). Conversely, the correlations of Sports Facility Accessibility with other variables were relatively weak although still significant, with the lowest value for the X1–X3 pair (r = 0.099).

Table 8. Pearson Correlation Matrix among Research Variables

Variable	X1	X2	X3	Y
X1 – Accessibility	1.000	0.143**	0.099**	0.159**
X2 – Sports Awareness	0.143**	1.000	0.674**	0.592**
X3 – Physical Activity	0.099**	0.674**	1.000	0.689**
Y – Physical Fitness	0.159**	0.592**	0.689**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

Path Analysis Results

Path analysis was conducted through three structural equation models. Model I tested the effect of X1 on X2, yielding a path coefficient of β = 0.143 (p = 0.000) and R^2 = 0.021—Sports Facility Accessibility explained only 2.1% of the variance in Sports Awareness, although its effect remained statistically meaningful. Model II tested the simultaneous effects of X1 and X2 on X3: the X1→X3 path was non-significant (β = 0.003; p = 0.921), whereas the X2→X3 path was highly significant (β = 0.673; p = 0.000), with R^2 = 0.454. Model III tested the simultaneous effects of X1, X2, and X3 on Y, producing F = 242.086 (p = 0.000) and R^2 = 0.510—the three predictors explained 51.0% of the variance in Physical Fitness, with Physical Activity as the strongest predictor (β = 0.689), followed by Sports Awareness (β = 0.592) and Sports Facility Accessibility (β = 0.159). A summary of all paths is presented in Table 9.

Table 9. Summary of Path Analysis Results across All Models

No	Path	Model	β Coeff.	p	Status
1	X1 → X2	I	0.143	0.000	Significant
2	X1 → X3	II	0.003	0.921	Not Significant
3	X2 → X3	II	0.673	0.000	Significant
4	X1 → Y	III	0.159	0.000	Significant
5	X2 → Y	III	0.592	0.000	Significant
6	X3 → Y	III	0.689	0.000	Significant

The structure of relationships among variables can be described as follows: X1 affects X2 directly (β = 0.143); X2 subsequently affects X3 (β = 0.673) and Y (β = 0.592); X3 affects Y (β = 0.689); while the direct path from X1 to X3 is non-significant (β = 0.003, ns), yet X1 still affects Y directly (β = 0.159). This pattern confirms that the effect of Sports Facility Accessibility on Physical Activity is fully channeled through Sports Awareness, as elaborated in the mediation testing section below.

These path coefficients warrant a distinction between statistical and practical significance. With N = 701, even very small coefficients can reach conventional significance thresholds, as illustrated by the X1→X2 path (β = 0.143; p = 0.000), which is statistically significant yet accounts for only 2.1% of the variance in Sports Awareness (R^2 = 0.021) and, by common effect-size benchmarks, represents a small effect. The X1→X3 path is the clearest case: at β = 0.003 (p = 0.921), the coefficient is not only statistically non-significant but is also negligible in magnitude, indicating that facility accessibility has essentially no direct bearing on students' physical activity once considered on its own path, rather than merely falling short of the significance threshold by chance. In contrast, the X2→X3 (β = 0.673) and X3→Y (β = 0.689) paths are both statistically significant and practically substantial, explaining considerably larger shares of variance (R^2 = 0.454 for Model II) and indicating effects of real-world consequence. Interpreted together, the coefficients suggest that facility accessibility is statistically detectable as a contributor to the overall model but is not, on its own, a practically meaningful lever for changing students' activity behavior, whereas sports awareness and physical activity are both statistically and practically the more influential determinants.

Mediation Testing

Following the Baron and Kenny (1986) criteria, three mediation conditions were met: (1) X1 significantly affected X2 (β = 0.143; p = 0.000); (2) X2 significantly affected X3 (β = 0.673; p = 0.000); and (3) after X2 was entered into the model, the direct effect of X1 on X3 became non-significant (β = 0.003; p = 0.921). These three conditions confirm the occurrence of full mediation, with an indirect effect magnitude of 0.143 × 0.673 = 0.096. In other words, sports facility accessibility only impacts the increase in students' physical activity if it first succeeds in fostering sports awareness within the students themselves.

Hypothesis Testing Summary

Table 10. Summary of Hypothesis Testing Results

Hyp.	Statement	Test Result	Status
H1	Accessibility → Sports Awareness	β=0.143; p=0.000	Accepted
H2	Accessibility → Physical Activity	β=0.003; p=0.921	Rejected
H3	Sports Awareness → Physical Activity	β=0.673; p=0.000	Accepted
H4	Accessibility → Physical Fitness	β=0.159; p=0.000	Accepted
H5	Sports Awareness → Physical Fitness	β=0.592; p=0.000	Accepted
H6	Physical Activity → Physical Fitness	β=0.689; p=0.000	Accepted
H7	Sports Awareness fully mediates X1 → X3	Full mediation	Accepted

Of the seven hypotheses tested, six were accepted; only H2 was rejected. The rejection of H2 actually strengthens the acceptance of H7, because it demonstrates that the effect of Sports Facility Accessibility on Physical Activity is realized only through the intermediary of Sports Awareness.

Discussion (مناقشة)

Sports Facility Accessibility Shapes Sports Awareness

The significant effect of Sports Facility Accessibility on Sports Awareness (β = 0.143; p = 0.000), despite its relatively small contribution (R^2 = 2.1%), aligns with the social ecological perspective that positions the physical environment as one of the shapers of health attitudes and

motivation (Sallis et al., 2012; Humpel et al., 2002). Students who are exposed to easily accessible sports facilities have a greater opportunity to develop positive perceptions of the benefits of exercise. This finding affirms that investment by schools and local governments in providing quality facilities remains relevant as an initial foundation, although it is not the sole determining factor.

Sports Awareness as a Full Mediator

The most substantial finding in this study is the confirmation of the full mediating role of Sports Awareness in the relationship between Sports Facility Accessibility and Physical Activity. Facility accessibility was not proven to drive physical activity directly ($\beta = 0.003$; $p = 0.921$), but exerted an influence through an indirect path of 0.096. This result confirms that facility availability is a necessary but not sufficient condition for changing students' active behavior—consistent with the Theory of Planned Behavior framework (Ajzen, 1991) and social cognitive theory (Bandura, 1986), which emphasize the importance of internal beliefs and motivation as drivers of behavior. The implication is that programs to increase physical activity in schools need to integrate a dual-pathway approach: the provision of quality facilities alongside structured and sustained sports motivation education.

The markedly stronger influence of Sports Awareness relative to Sports Facility Accessibility can be explained by their differing positions in the behavioral causal chain. Facility accessibility is a distal, structural condition: it can only create an opportunity for activity, and its effect on behavior is necessarily indirect because opportunity alone does not compel action. Sports Awareness, by contrast, is a proximal cognitive-motivational state that operates immediately prior to behavior, encompassing the beliefs, attitudes, and intentions that the Theory of Planned Behavior (Ajzen, 1991) and social cognitive theory (Bandura, 1986) identify as the direct antecedents of action. A student may therefore have ready access to facilities yet remain inactive without the accompanying awareness, whereas a student with strong awareness may seek out or improvise ways to be active even when facilities are limited. This asymmetry also explains why Sports Awareness, once entered into the model, absorbs virtually all of Facility Accessibility's influence on Physical Activity.

Positioned against prior evidence, this finding both confirms and extends the literature rather than simply replicating it. It confirms Aji et al. (2023), who likewise reported sports awareness as significantly related to active participation, and is compatible with Davison and Lawson (2006) and Sallis et al. (2012), who established that environmental accessibility is associated with physical activity, since the present study still finds a significant, if indirect, pathway from accessibility to activity. However, the present study extends this body of work by showing that the accessibility-activity association previously documented in the literature may in fact operate almost entirely through awareness rather than as a direct environmental effect—a mediating mechanism that earlier accessibility-focused studies, which typically examined bivariate associations, were not positioned to detect. In this sense, the near-zero direct path found here ($\beta = 0.003$) does not contradict prior accessibility research so much as clarify the pathway underlying it, suggesting that future studies reporting a raw accessibility-activity correlation should consider whether awareness or motivation is the more proximal mechanism at work.

Physical Activity as the Strongest Predictor of Physical Fitness

Physical Activity proved to be the strongest predictor of Physical Fitness ($\beta = 0.689$; $p = 0.000$), reinforcing the scientific consensus that the frequency, intensity, and duration of bodily movement determine an individual's fitness level (American College of Sports Medicine, 2018; World Health Organization, 2020). This finding implies that strengthening students' physical fitness needs to rest on increasing the quantity and quality of daily physical activity, not solely

relying on PJOK class hours, but also synergy with independent physical activity outside school as well as family environmental support.

Sports Awareness as the Second Predictor of Physical Fitness

Sports Awareness was also proven to significantly affect Physical Fitness (β = 0.592; p = 0.000), both directly and through the mediation of Physical Activity. This is consistent with the findings of Al-Qurni et al. (2022) and Rafli et al. (2024), who showed that understanding and positive attitudes toward sport contribute to the consistency of active behavior and the quality of students' physical condition. The consistency of exercise that arises from internal awareness is what cumulatively produces better fitness outcomes, so that psychoeducational programs about the benefits of sport should become an integral part of the PJOK curriculum.

Research Limitations

Several limitations should be noted in interpreting the results of this study. First, all variables were measured perceptually through self-report questionnaires, so they potentially contain social desirability bias. Second, the cross-sectional design used does not allow strong causal conclusions regarding changes in variables over time. Third, the research scope was limited to four public schools in Batu City, so generalization to private schools or other regions requires caution. Fourth, the research model has not yet involved other potentially relevant variables, such as dietary patterns, sleep quality, and family socioeconomic status.

Conclusion (خاتمة)

Using path analysis on cross-sectional data from 701 public SMA/SMK students in Batu City, this study estimates the pattern of associations among Sports Facility Accessibility, Sports Awareness, Physical Activity, and Physical Fitness; because the design is cross-sectional and non-experimental, these path coefficients should be interpreted as statistical associations consistent with the hypothesized model rather than as proof of causation. Six of the seven research hypotheses were supported. Sports Facility Accessibility was associated with Sports Awareness (β = 0.143) and with Physical Fitness directly (β = 0.159), but showed no meaningful direct association with Physical Activity. Sports Awareness emerged as a key variable: it was strongly associated with Physical Activity (β = 0.673) and Physical Fitness (β = 0.592), and the data were consistent with a full mediation pattern on the path from Sports Facility Accessibility to Physical Activity. Physical Activity was in turn the strongest correlate of Physical Fitness (β = 0.689), with the overall model accounting for 51.0% of the variance in students' Physical Fitness. The principal scientific contribution of this study is to demonstrate, within a single integrated path model, that the often-assumed link between environmental sports-facility accessibility and adolescents' physical activity is not a direct one but is instead channeled almost entirely through sports awareness—evidence that reframes facility accessibility as a distal enabler rather than a proximal driver of active behavior, and that has not previously been documented within an Indonesian senior high school population.

The practical implication is that improving students' physical fitness cannot rely solely on the provision of adequate sports facilities, but must be accompanied by systematic efforts to build sports awareness and motivation. Schools and local governments are advised to pursue a dual-track strategy: equitable distribution and maintenance of quality sports facilities, accompanied by structured and sustained sports education and motivation programs within the PJOK curriculum. Because the cross-sectional design cannot rule out reverse or reciprocal relationships (for example, already-active students subsequently seeking out or noticing facilities more), these recommendations should be treated as provisional pending confirmation from longitudinal or experimental research. Future research is therefore recommended to use more objective fitness

measurements (for example, the Indonesian Physical Fitness Test), longitudinal or experimental designs, and to expand the population and variable coverage in order to obtain a more comprehensive and causally informative model.

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