



Exercise Self-Efficacy and FoMO Predict Adolescent Sport Involvement in the Digital Era

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ABSTRACT

Adolescent sport involvement is influenced by psychological factors, particularly exercise self-efficacy and fear of missing out (FoMO). This study examined the effects of both factors on sport involvement among 350 adolescents aged 13–18 years from five secondary schools in Bandung, Indonesia. Using a quantitative cross-sectional design and stratified random sampling, data were collected through three five-point Likert scales and analyzed using multiple linear regression. Exercise self-efficacy positively predicted sport involvement ($\beta = .42, p < .001$), while FoMO had a negative effect ($\beta = -.28, p < .001$). Both variables explained 38% of the variance in sport involvement ($R^2 = .38, F(2, 347) = 105.82, p < .001$). Exercise self-efficacy was the strongest positive predictor, whereas FoMO was a potential barrier to participation. These findings highlight the importance of strengthening exercise self-efficacy and promoting digital literacy to encourage adolescent sport involvement in the digital era.

Keywords: *sport involvement, exercise self-efficacy, fear of missing out (FoMO), adolescents, physical activity, digital era.*



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INTRODUCTION

The rapid development of digital technology in the last two decades has fundamentally changed the behavior patterns of adolescents, including in terms of their involvement in physical activity and sports. In Indonesia, data from the 2023 National Socio-Economic Survey (Susenas) shows that the average adolescent aged 13–18 spends more than seven hours per day in front of digital screens, while participation rates in structured physical activity tend to decline (Saputra et al., 2026). This trend reflects a broader global concern. According to the World Health Organization (Organization & others, 2022), more than 80% of adolescents worldwide fail to achieve the recommended minimum of 60 minutes of daily physical activity.

Sport involvement, which refers to the level of psychological and behavioral involvement of a person in sports activities (Yulianto et al., 2024) is an important construct for understanding adolescent sports participation more comprehensively. Involvement in sport not only impacts physical health, but also contributes to adolescents' cognitive, social, and emotional development (Satrianingsih & Yulianto., 2025; Faridah et al, 2024). However, the digital era presents new challenges in the form of a sedentary lifestyle that is increasingly strengthened due to the high accessibility of digital entertainment and social pressure mediated by social media platforms.

Exercise self-efficacy has consistently been identified as one of the strongest psychological predictors of exercise adherence. It reflects an individual's confidence in their ability to initiate and maintain exercise under various circumstances (Bandura., 2017; Saputra & Yulianto, 2025). Adolescents with higher exercise self-efficacy are generally more persistent, better able to overcome barriers, and more likely to maintain regular participation in sport (Risyanto & Yulianto, 2025). Conversely, Fear of Missing Out (FoMO), characterized by anxiety about missing rewarding social experiences and a persistent desire to remain connected through digital media (Przybylski et al., 2021), has become increasingly common among adolescents. Higher levels of FoMO have been associated with compulsive social media use, reduced physical activity, and lower motivation to participate in exercise (Blackwell et al., 2017).

Recent studies have demonstrated that exercise self-efficacy positively predicts participation in physical activity and sport, whereas FoMO is generally associated with increased screen time and sedentary behavior. However, these variables have predominantly been examined independently rather than within an integrated framework. Furthermore, most existing studies have been conducted in Western countries and have focused primarily on adult or university populations, providing limited evidence regarding adolescents in developing countries. Consequently, little is known about how exercise self-efficacy and FoMO simultaneously influence sport involvement among Indonesian adolescents living in an increasingly digital environment. Addressing this gap is important because the interaction between positive psychological resources and digital-related

psychosocial challenges may explain variations in adolescents' engagement in sport more comprehensively than examining each factor separately.

Unlike previous studies that investigated exercise self-efficacy or FoMO independently, the present study simultaneously examines both variables as predictors of sport involvement among Indonesian adolescents who actively participate in sport. By integrating these psychological constructs within the context of the digital era, this study extends current knowledge on adolescent sport behavior and provides evidence from a developing-country setting that remains underrepresented in the existing literature.

Accordingly, this study addresses two research questions: (1) Does exercise self-efficacy significantly influence sport involvement among adolescents in the digital era? and (2) Does FoMO significantly influence adolescents' sport involvement? Therefore, this study aims to examine the individual and combined effects of exercise self-efficacy and FoMO on sport involvement among physically active adolescents aged 13 to 18 years in Bandung, Indonesia.

RESEARCH METHODS

Research Design

This study uses a quantitative approach with a correlational-predictive survey design. This design was chosen because it allows systematic testing of relationships and influences between variables on a representative sample without any manipulation of variables by researchers (Creswell & Creswell, 2017).

Population and Sample

The study population is all adolescents aged 13–18 years who are registered as active students in junior high school (SMP) and high school (SMA) in the city of Bandung and participate in extracurricular or routine sports activities at least twice per week. Based on data from the Bandung City Education Office in 2025, there are 87,420 students who are included in the population criteria. Sample size was determined using the Slovin formula with an error rate of 5% ($\alpha = .05$), resulting in a minimum sample of 397 individuals. After taking into account the potential for incomplete data and outliers, the target sample was set at 400 respondents. In the end, 350 questionnaires were declared valid and could be analyzed (response rate = 87.5%). The sampling technique uses stratified random sampling with

stratification based on education level (junior high school/high school) and gender, so that the sample is proportional and representative.

Research Instruments

This study used three measurement instruments with a 5-point Likert scale format (1 = Strongly Agree to 5 = Strongly Agree):

(1) Sport Involvement Scale: Adapted from (Kyle & Mowen, 2025) and developed in the Indonesian version. It consists of 20 items that measure three dimensions: attraction (7 items), centrality (7 items), and sign (6 items). Example item: "Exercise is a very important activity in my life."

(2) Exercise Self-Efficacy Scale (ESES): Adapted from (McAuley & Blissmer, 2020) with contextual modifications. It consists of 16 items that measure adolescents' confidence in exercising under different conditions. Example item: "I'm confident that I can keep exercising even though I'm tired."

(3) FoMO Scale: Adapted from the FoMO scale developed by (Przybylski et al., 2021) The Indonesian version, which has been validated by Muyana (2018). Consists of 10 items. Example item: "I feel anxious if I don't know what my friends are doing on social media."

Validity and Reliability

The validity test was carried out through two stages: content validity by three experts (expert judgment) from the fields of sports psychology, sports, and measurement; and construct validity through Confirmatory Factor Analysis (CFA) using AMOS 24. All items that have a $< .40$ loading factor are eliminated. The CFA results showed a good model fit index: CFI = .94, RMSEA = .058, SRMR = .062 (Hu & Bentler, 2019).

The reliability test used Cronbach's Alpha (α) and Composite Reliability (CR) methods. The Sport Involvement Scale yields $\alpha = .88$ (CR = .91), the Exercise Self-Efficacy Scale yields $\alpha = .87$ (CR = .89), and the FoMO Scale yields $\alpha = .84$ (CR = .87). All alpha and CR values were above the .70 threshold, indicating good reliability (Nunnally & Bernstein, 2018).

Data Analysis Techniques

Data analysis is carried out in several stages. First, descriptive statistical analysis to describe respondent characteristics and variable score distribution. Second, the classical assumption test includes the normality test (Kolmogorov-

Smirnov), the multicollinearity test (VIF value), and the heteroscedasticity test (Breusch-Pagan test). Third, multiple linear regression analysis to test the hypotheses H1, H2, and H3, using the equation: $Y = a + b_1X_1 + b_2X_2 + \varepsilon$. All statistical analysis was carried out using IBM SPSS Statistics 26 software with a significance level of $\alpha = .05$.

RESULTS AND DISCUSSION

Description of Respondent Characteristics

The total number of respondents who were successfully analyzed amounted to 350 adolescents. The distribution of respondent characteristics is presented in Table 1 below.

Table 1. Characteristics of Respondents (N = 350)

Features	Category	n (%)
Gender	Male	198 (56,6%)
	Women	152 (43,4%)
Age Group	13–14 years old	98 (28,0%)
	15–16 years old	147 (42,0%)
	17–18 years old	105 (30,0%)
Sports Frequency	< 2x/week	84 (24,0%)
	2–3x/week	178 (50,9%)
	> 3x/week	88 (25,1%)

Descriptive Statistics of Research Variables

Table 2 presents descriptive statistics for the three research variables. The sports involvement score showed an average score of 41.38 (SD = 7.24) from a theoretical score range of 20–100. Exercise self-efficacy had an average of 33.57 (SD = 6.83) from a range of 16–80, and FoMO had an average of 29.42 (SD = 8.17) from a range of 10–50.

Table 2. Descriptive Statistics of Research Variables

Variabel	Min	Max	Average	SD
Sport Involvement	22	55	41,38	7,24
Exercise Self-Efficacy	18	45	33,57	6,83
FoMO	10	50	29,42	8,17

Classic Assumption Test

The results of the Kolmogorov-Smirnov test showed a normal residual distribution ($D = .048$, $p = .062$). The Variance Inflation Factor (VIF) values for exercise self-efficacy = 1.18 and FoMO = 1.15, well below the threshold of 10, indicate that there is no problem with multicollinearity. The Breusch-Pagan test confirmed the absence of significant heteroscedasticity ($\chi^2 = 3.21$, $p = .201$). Thus, the entire multiple linear regression assumption is fulfilled.

Results of Multiple Linear Regression Analysis and Hypothesis Test

Table 3 presents the results of multiple linear regression analysis to test the three research hypotheses.

Table 3. Multiple Linear Regression Analysis Results (N = 350)

Variable Predictor	B	SE	b	p-value
Konstanta	12,47	2,31	-	.000
Exercise Self-Efficacy	0,58	0,07	.42	.000
FoMO	-0,31	0,06	-.28	.000
$R^2 = .38$; $F(2, 347) = 105.82$; $p < .001$				

Note: B = non-standardized coefficient; SE = standard error; β = standardized coefficient; p = significance value

Based on Table 3, the results of the hypothesis test can be concluded as follows. H1 supported: exercise self-efficacy has a positive and significant effect on sport involvement ($\beta = .42$, $p < .001$). H2 supported: FoMO had a negative and significant influence on sport involvement ($\beta = -.28$, $p < .001$). H3 is supported: simultaneously, exercise self-efficacy and FoMO have a significant effect on sport involvement ($F(2, 347) = 105.82$, $p < .001$), with a determination coefficient value of $R^2 = .38$, suggesting that 38% of the variance in sport involvement can be explained by both predictor variables.

The Effect of Self-Efficacy Training on Sports Engagement

The findings of this study confirm H1, that exercise self-efficacy is a significant positive predictor of adolescent sports involvement ($\beta = .42$, $p < .001$). These results are consistent with the predictions of Social Cognitive Theory (Bandura, 2017) which states that self-efficacy is a key mediator between knowledge and real actions. Teens who have high confidence in their exercise abilities invest more time, energy, and emotional commitment in sports activities.

These findings are in line with the results of a study by Dishman et al., (2019) in American adolescents, as well as a study by Haugen et al., (2023) in French adolescents who both found a strong positive association between exercise self-efficacy and exercise participation. In the Indonesian context, Kusuma and Wahyudi (2022) also found similar results in students who actively exercised. The strength of the association in this study ($\beta = .42$) was slightly higher than that of the meta-analysis of (Moritz et al., 2020) which reported an average correlation of $r = .38$, likely because the sample of this study specifically targeted adolescents who were actively exercising, so the variance exercise self-efficacy was more varied.

The implications of these findings are particularly relevant in the context of physical education. Physical education teachers and sports coaches need to actively design learning experiences that are oriented towards strengthening mastery experiences for example through progressive goal-setting as well as expanding adolescents' access to relevant and easily identifiable sports role models, which can now be mediated through positive digital content.

The Influence of FoMO on Sport Involvement

H2 is also supported by the results of this study: FoMO has a significant negative influence on sport involvement ($\beta = -.28$, $p < .001$). These findings strengthen the argument that FoMO is a psychological inhibiting factor that has the potential to erode adolescents' involvement in sports activities. The underlying mechanism can be explained through two paths. First, FoMO encourages excessive use of social media, which competes directly with the time that can be allocated to exercise (Przybylski et al., 2021). Second, FoMO gives rise to unhealthy social comparisons, which can weaken intrinsic motivation to exercise (Abel et al., 2016).

These results are in line with the findings of (Oberst et al., 2017) in Spain and (Blackwell et al., 2017) in the United States, who reported a negative association between FoMO and involvement in physical activity. In Indonesia, (Ibrahim et al., 2024) also found a negative correlation between FoMO and sports extracurricular participation. Interestingly, the beta value in this study ($\beta = -.28$) was slightly smaller than the effect of exercise self-efficacy ($\beta = .42$), which suggests that internal psychological factors (self-efficacy) have greater predictive power than digital social pressure (FoMO) in determining adolescent sports involvement.

These findings have important implications for the development of digital literacy programs in schools. Interventions aimed at reducing FoMO—such as digital-based mindfulness training, screen time management, and critical awareness of social media content—can be an effective complement to conventional physical education programs (Elhai et al., 2020).

Simultaneous Influences and Implications

Simultaneously, the proposed multiple regression model was able to explain 38% of the variance in sport involvement ($R^2 = .38$), which is a practically significant effect (Cohen, 2023). This R^2 value indicates that other variables that have not been studied—such as parental support, accessibility of sports facilities, type of sport of interest, and sociodemographic factors—still have a substantial contribution to adolescent sport involvement and are worth exploring in future research.

Theoretically, these findings extend the application of Social Cognitive Theory (Bandura, 1997) and Self-Determination Theory (Deci & Ryan, 2020) into the context of the digital age, in particular by integrating the FoMO construct as a variable that has not been widely tested within the framework of sports engagement theory. Practically, a comprehensive intervention program needs to combine strengthening exercise self-efficacy (an insider approach) with FoMO management (an outside approach) to optimize adolescent sport engagement.

CONCLUSION

This study achieved proved empirically that exercise self-efficacy had a positive and significant effect on adolescent sports involvement ($\beta = .42$, $p < .001$), while FoMO had a negative and significant effect ($\beta = -.28$, $p < .001$). Simultaneously, both variables explain 38% of the variance in sports involvement, confirming that internal psychological factors and digital social pressures are important determinants of adolescent sports involvement in the digital age.

The theoretical implication of this study is to enrich the theoretical model of sports involvement by integrating the FoMO construct as a contemporary relevant digital variable, as well as confirming the relevance of Social Cognitive Theory in the context of Indonesian adolescent sports behavior. Practical implications include: (1) the need for physical education programs based on strengthening self-efficacy through structured success experiences and modeling; (2) the need to integrate

digital literacy and FoMO management in the adolescent health education curriculum; and (3) the importance of training for physical education teachers to understand the impact of FoMO on students' exercise motivation.

This research has several limitations that need to be acknowledged. First, the cross-sectional design does not allow for strong causality inferences. Second, the sample is limited to one city, so generalizations to the national population need to be done with caution. Third, measuring sport involvement using self-report is vulnerable to social desirability bias. Further research is recommended to use longitudinal or experimental designs, expand the geographic scope of the sample, explore mediating and moderating variables (e.g., social support, type of exercise, or intensity of social media use), and pilot exercise self-efficacy-based intervention programs and FoMO management empirically.

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