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6 ES August 2026 OKE Rania Azzahra Nur Imani 184_200

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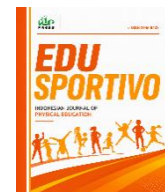
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RESEARCH ARTICLE

Social media use and physical activity among college students: the moderating roles of cognitive reappraisal and expressive suppression

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Received 21 May 2026; Accepted 23 August 2026; Published 29 August 2026

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ABSTRACT

Background: Social media use has become increasingly prevalent among college students, raising questions about its relationship with physical activity and emotion regulation. However, evidence regarding these relationships remains inconsistent, and the potential moderating role of emotion-regulation strategies is not well established. **Objectives:** This study examined the association between social media use and physical activity and tested whether cognitive reappraisal and expressive suppression moderated this association among college students. **Methods:** A cross-sectional survey was conducted among 192 undergraduate students from universities across Indonesia using purposive sampling. Data were collected using the Global Physical Activity Questionnaire (GPAQ), the Emotion Regulation Questionnaire (ERQ), and a social media use instrument. Data were analysed using descriptive statistics, Spearman's rank-order correlation, and moderation regression analysis in JASP. **Results:** Social media use was positively associated with cognitive reappraisal ($r_s = 0.199, p = 0.006$) but was not significantly associated with physical activity ($r_s = 0.018, p = 0.808$). Neither cognitive reappraisal nor expressive suppression significantly moderated the association between social media use and physical activity ($p = 0.570$ and $p = 0.582$, respectively). **Conclusion:** Neither cognitive reappraisal nor expressive suppression significantly moderated the association between social media use and physical activity in this sample. These findings suggest that the relationship between social media use and physical activity may depend on other psychological, behavioural, and environmental factors that should be examined using longitudinal and multivariable research designs.

Keywords: Social media use; physical activity; emotion regulation; cognitive reappraisal; expressive suppression

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10.25299/es:ijope.2026.vol7(2).28351

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How to Cite: Imani, R. A. N., & Jannah, M. (2026). Social media use and physical activity among college students: the moderating roles of cognitive reappraisal and expressive suppression. *Edu Sportivo: Indonesian Journal of Physical Education*, 7(2), 184-200. [https://doi.org/10.25299/es:ijope.2026.vol7\(2\).28351](https://doi.org/10.25299/es:ijope.2026.vol7(2).28351)

Authors' Contribution: a – Study Design; b – Data Collection; c – Statistical Analysis; d – Manuscript Preparation; e – Funds Collection



INTRODUCTION

Advances in digital technology have substantially transformed how college students communicate, access information, and organise their daily activities. Social media

platforms provide opportunities for communication, social interaction, information seeking, and participation in online communities (Kim et al., 2016; Wadley et al., 2020). However, the increasing integration of social media into everyday life has also raised concerns about its potential displacement of health-promoting behaviours, particularly physical activity and adequate recovery. Among college students, physical activity is an important component of healthy lifestyle development and is associated with psychological well-being and quality of life (Abrantes et al., 2022; Herbert, 2022; Hosker et al., 2019). Recent evidence further indicates that digital technologies and social media may have both positive and negative implications for physical activity, depending on how they are used and the behavioural context in which they are embedded (Buja et al., 2024; Goodyear et al., 2021).

Ideally, college students should be able to integrate social media use into their daily lives without compromising participation in health-enhancing physical activity. Regular physical activity contributes to psychological well-being and may also be associated with better emotional functioning among young adults (Herbert et al., 2020; Wang et al., 2022). Conversely, excessive or poorly regulated digital engagement may contribute to sedentary behaviour and reduce opportunities for physical activity (Rocka et al., 2022; Wang, Gong et al., 2025). The university environment is therefore an important setting for understanding how digital behaviour interacts with student' physical and psychological lifestyles, particularly because this period involves the development and consolidation of long-term health behaviours (Brown et al., 2024; Buja et al., 2024).

The increasing use of social media and other digital technologies among young adults has generated concerns about sedentary behaviour and reduced physical activity. Previous research has associated intensive digital and social media use with sedentary lifestyles, sleep disturbances, psychological distress, and other health-related outcomes (Foroughi et al., 2022; Gómez-Galán et al., 2020; Haddad et al., 2021). Prolonged screen exposure has also been linked to lower physical activity in some student populations (Fahrezy et al., 2025; Jelleli et al., 2024). However, the relationship should not be interpreted as uniformly detrimental. Social media can also provide exercise-related information, peer support, online communities, and motivational content that facilitate participation in physical activity (Buja et al., 2024; Goodyear et al., 2021; Wang, Zhang et al., 2025).

Despite these concerns, empirical findings regarding the association between social media use and physical activity among college students remain inconsistent. Some studies suggest that greater or problematic digital engagement is associated with lower physical activity because prolonged screen-based behaviour may increase sedentary time and reduce opportunities for exercise (Pereira et al., 2020; Sanz-Martín et al., 2024). Conversely, social media-based interventions have demonstrated potential to promote physical activity by providing behavioural prompts, social support, exercise information, and online communities (Buja et al., 2024; Goodyear et al., 2021). A recent systematic review found that most social media- or text-message-based interventions among university students improved physical activity, although the effects varied across intervention characteristics and participant groups (Buja et al., 2024). Therefore, the relationship between social media use and physical activity may depend on individual and contextual conditions rather than representing a simple direct association.

One potential psychological boundary condition is emotion regulation, which refers to the processes through which individuals influence the emotions they experience, when they experience them, and how these emotions are expressed or managed (Gross & John, 2003; Malti & Noam, 2016). Emotion regulation is relevant to both digital behaviour and

physical activity because individuals differ in their capacity to manage emotional responses, impulses, and behavioural choices. Previous research has linked emotion regulation with social media-related behaviours and psychological well-being (Rozgonjuk & Elhai, 2021; Wartberg et al., 2021; Yue et al., 2022), while recent evidence has also demonstrated associations between physical activity and emotion-regulation processes among college students (Sheng et al., 2024; Yang et al., 2026). These findings suggest that emotion regulation may help explain why similar levels of social media use could be associated with different behavioural outcomes across individuals.

According to Gross and John's (2003) process model of emotion regulation, two commonly examined strategies are cognitive reappraisal and expressive suppression. Cognitive reappraisal involves changing the interpretation of an emotionally relevant situation before the emotional response is fully developed, whereas expressive suppression involves inhibiting the outward expression of an emotion after the emotional response has occurred (Gross & John, 2003). These strategies may have different implications for behavioural regulation. Cognitive reappraisal is generally considered a more adaptive regulatory strategy, whereas expressive suppression primarily modifies emotional expression rather than the underlying emotional experience (Gross & John, 2003; Malti & Noam, 2016). Recent research among college students has continued to distinguish these two strategies when examining the relationship between physical activity and psychological outcomes (Sheng et al., 2024; Yang et al., 2026). Accordingly, examining cognitive reappraisal and expressive suppression separately may provide a more precise explanation of individual differences in the relationship between social media use and physical activity.

Although previous research has examined social media use, physical activity, and emotion regulation, relatively limited attention has been given to whether emotion-regulation strategies alter the strength or direction of the association between social media use and physical activity among college students. Much of the existing literature has focused on the psychological consequences of social media use, the association between digital behaviour and physical activity, or emotion regulation as a mediator or outcome rather than as a moderating boundary condition (Goodyear et al., 2021; Rozgonjuk & Elhai, 2021; Wartberg et al., 2021). Moreover, studies that consider emotion regulation often treat it as a general construct rather than distinguishing cognitive reappraisal from expressive suppression. Recent research nevertheless demonstrates the importance of examining these strategies separately in relation to physical activity and psychological outcomes (Sheng et al., 2024; Yang et al., 2026). Therefore, examining the two strategies separately as moderators may extend current understanding of the psychological conditions under which social media use is associated with physical activity.

This issue is particularly relevant in the Indonesian college-student context, where social media has become an integral component of students' everyday communication and information practices, while physical activity remains an important component of healthy lifestyle development. However, evidence examining the interaction between social media use, physical activity, and emotion-regulation strategies among Indonesian college students remains limited. The present study therefore examines whether cognitive reappraisal and expressive suppression moderate the association between social media use and physical activity among Indonesian college students. By distinguishing these two emotion-regulation strategies, the study seeks to provide a more nuanced understanding of individual differences in the relationship between digital behaviour and physical activity and to contribute evidence from an underrepresented national context. Based on the theoretical framework and previous empirical evidence, the following hypotheses were proposed:

- H1:** Social media use is significantly associated with physical activity among college students.
- H2:** Cognitive reappraisal significantly moderates the association between social media use and physical activity among college students.
- H3:** Expressive suppression significantly moderates the association between social media use and physical activity among college students.

METHODS

Research Design

This study employed a quantitative cross-sectional design to examine the association between social media use and physical activity and to test whether emotion regulation moderates this association among college students. A cross-sectional design was appropriate because all study variables were measured at a single point in time without experimental manipulation. Accordingly, the findings are interpreted as associations rather than causal effects.

Participants

The study was conducted through an online survey administered via Google Forms among undergraduate students from various universities across Indonesia. Participants were recruited using purposive sampling based on predefined eligibility criteria. The inclusion criteria were: (i) active undergraduate students enrolled at an Indonesian university during the data-collection period; (ii) aged 17 years or older; (iii) willing to participate voluntarily; and (iv) completing all study instruments. Participants were excluded if their questionnaires were incomplete, their Global Physical Activity Questionnaire (GPAQ) responses could not be scored, or data were missing for one or more study variables.

A total of 254 responses were initially obtained. During data screening, 62 responses were excluded because the GPAQ responses were incomplete or could not be scored, resulting in a final sample of 192 participants. The participants had a mean age of 20.16 years ($SD = 1.47$; range = 17-24 years), comprising 50 males (26.0%) and 142 females (74.0%). Participants represented various faculties and universities across Indonesia. Because recruitment was conducted through an open online survey using purposive sampling, a conventional response rate could not be determined accurately.

Ethical Approval

Ethical approval was obtained from the Research Ethics Committee of the Faculty of Psychology, Universitas Negeri Surabaya (Approval ID: B/3136/UN38.11/TU.00/2025). Before accessing the questionnaire, all participants received information about the study and provided informed consent. Participation was voluntary, and participants' responses were kept confidential and used solely for research purposes.

Instruments

Physical Activity

Physical activity was assessed using the Global Physical Activity Questionnaire (GPAQ) developed by the World Health Organization. The GPAQ assesses the frequency, duration, and intensity of physical activity across different domains, including work, transport, and recreational activities, as well as sedentary behaviour (Bull et al., 2009; World Health Organization, 2020). Physical activity scores were calculated according to the GPAQ scoring protocol and used as the outcome variable in the statistical analyses.

Emotion Regulation

Emotion regulation was assessed using the Emotion Regulation Questionnaire (ERQ) developed by (Gross & John, 2003). The ERQ consists of two conceptually distinct strategies: cognitive reappraisal (6 items) and expressive suppression (4 items). Cognitive reappraisal reflects the tendency to reinterpret situations to modify their emotional impact, whereas expressive suppression reflects the tendency to inhibit the outward expression of emotions (Gross & John, 2003). The two dimensions were analysed separately as potential moderators of the association between social media use and physical activity.

Social Media Use

Social media use was measured using a 12-item researcher-developed scale based on conceptualisations of social media use reported in previous research (Foroughi et al., 2022; Zhao, 2021). The instrument covered four aspects: usage intensity, emotional engagement, social interaction, and tendencies toward excessive use. Higher scores indicated greater levels of social media use.

Table 1. Internal Consistency of the Study Instruments

Instrument	Number of items	Cronbach's α
Social Media Use	12	0.673
Emotion Regulation – Cognitive Reappraisal	6	0.706
Emotion Regulation – Expressive Suppression	4	0.635

Reliability

The internal consistency coefficients ranged from 0.635 to 0.706. Cognitive reappraisal demonstrated relatively acceptable internal consistency ($\alpha = 0.706$), whereas the Social Media Use scale ($\alpha = 0.673$) and expressive suppression subscale ($\alpha = 0.635$) showed modest internal consistency. These coefficients were therefore interpreted cautiously, particularly because both emotion-regulation dimensions were subsequently examined as moderators.

Procedure

Data were collected through an online questionnaire administered using Google Forms. Before completing the questionnaire, participants were provided with information about the purpose of the study and instructions for completing the instruments. Participation was voluntary, and participants provided informed consent before proceeding with the questionnaire. The collected data were treated confidentially and used solely for research purposes. Responses were subsequently screened for completeness and eligibility before statistical analysis.

Data Analysis

Data were analysed using JASP version 0.98.1. Descriptive statistics and Cronbach's alpha were calculated to summarise the variables and assess internal consistency. Data distribution and regression assumptions were examined using the Shapiro–Wilk test, Q–Q plots, scatterplots, tolerance, and VIF. Because physical activity scores were not normally distributed, Spearman's rank-order correlation was used to examine bivariate associations. Hierarchical multiple regression was then conducted to test the moderating effects of cognitive reappraisal and expressive suppression, with predictor variables mean-centered before creating interaction terms. Model fit was assessed using R^2 , adjusted R^2 , and ΔR^2 , with statistical significance set at $p < 0.05$.

RESULTS

Descriptive Statistics

Descriptive statistics were calculated to summarise the distribution and variability of the study variables. As presented in **Table 2**, physical activity showed substantially greater variability than the psychological variables, with marked positive skewness and kurtosis. Social media use, cognitive reappraisal, and expressive suppression showed comparatively more moderate distributional characteristics.

Table 2. Descriptive Statistics of Study Variables

Variable	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
Physical Activity	3957	7283	60	53.960	3.813	17.790
Social Media Use	43.10	5.55	28	60	0.322	0.115
Cognitive Reappraisal	22.82	3.61	12	30	-0.055	-0.064
Expressive Suppression	13.45	3.27	5	20	-0.192	-0.361

As shown in **Table 2**, physical activity exhibited substantial variability, with a mean score of 3.957 (SD = 7.283) and values ranging from 60 to 53.960. The distribution was strongly positively skewed (skewness = 3.813) and highly leptokurtic (kurtosis = 17.790), indicating substantial departure from normality. In comparison, social media use, cognitive reappraisal, and expressive suppression showed relatively limited skewness and kurtosis, with mean scores of 43.10 (SD = 5.55), 22.82 (SD = 3.61), and 13.45 (SD = 3.27), respectively. These descriptive results provide the basis for the subsequent use of Spearman's rank-order correlation for bivariate analysis.

Correlation Analysis

Spearman's rank-order correlation was conducted to examine the bivariate associations among physical activity, social media use, cognitive reappraisal, and expressive suppression. As shown in **Table 3**, the correlation analysis provides an initial assessment of the relationships among the study variables before the moderation analyses.

Table 3. Spearman Correlations among Study Variables

Variable Pair	r_s	p
Physical Activity – Social Media Use	0.018	0.808
Physical Activity – Cognitive Reappraisal	-0.004	0.959
Physical Activity – Expressive Suppression	0.129	0.076
Social Media Use – Cognitive Reappraisal	0.199	0.006**
Social Media Use – Expressive Suppression	-0.001	0.994
Cognitive Reappraisal – Expressive Suppression	0.317	< 0.001***

Note. $p < .05$; * $p < .01$; ** $p < .001$.

As shown in **Table 3**, physical activity was not significantly associated with social media use ($r_s = 0.018$, $p = 0.808$), cognitive reappraisal ($r_s = -0.004$, $p = 0.959$), or expressive suppression ($r_s = 0.129$, $p = 0.076$). In contrast, social media use was weakly but significantly positively associated with cognitive reappraisal ($r_s = 0.199$, $p = 0.006$). Social media use was not significantly associated with expressive suppression ($r_s = -0.001$, $p = 0.994$). Cognitive reappraisal showed a moderate positive association with expressive suppression ($r_s = 0.317$, $p < 0.001$).

Regression Assumption Testing

Before conducting the moderation analyses, the assumptions underlying the regression models were assessed. **Figure 1** presents the residuals-versus-predicted

values plot, which was examined to assess linearity and homoscedasticity. The residuals were generally dispersed around the zero line, although several observations showed relatively large positive residuals. No clear funnel-shaped or systematic pattern was observed, suggesting that there was no strong visual evidence of heteroscedasticity.

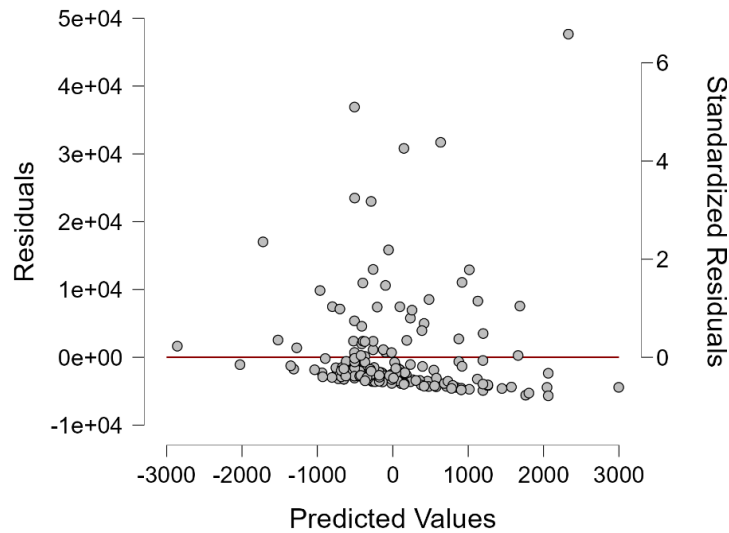


Figure 1. Residuals versus Predicted Values

Figure 2 presents the Q-Q plot of standardised residuals, which was examined to assess the normality of the regression residuals. Most residuals deviated from the diagonal reference line, particularly in the upper tail, indicating a substantial departure from normality. This observation was consistent with the significant Shapiro–Wilk test ($p < 0.001$), indicating that the residuals did not fully conform to a normal distribution. Therefore, the normality assumption should be interpreted with caution when evaluating the subsequent moderation models.

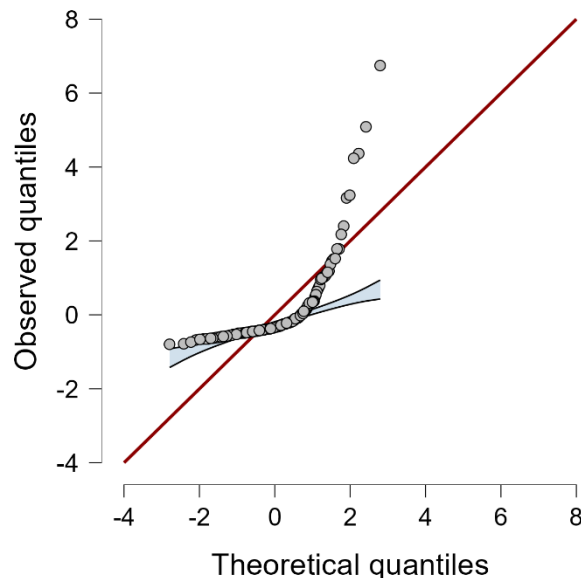


Figure 2. Q-Q Plot of Standardised Residuals

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For multicollinearity, the VIF values in the moderation models ranged from 1.002 to 1.066, indicating no evidence of problematic multicollinearity among the predictors and interaction terms.

Moderation Analysis

Moderation analyses were conducted to examine whether the two emotion regulation strategies, cognitive reappraisal and expressive suppression, altered the relationship between social media use and physical activity. Separate regression models were estimated for each strategy, with the interaction term between social media use and the respective emotion regulation strategy representing the moderation effect. The results of the cognitive reappraisal model are presented in Table 4.

Table 4. Moderation Analysis of Cognitive Reappraisal on the Relationship Between Social Media Use and Physical Activity

Predictor	B	β	t	p	VIF
Social Media Use	37.86	0.029	0.393	0.695	1.025
Cognitive Reappraisal	164.80	0.082	1.092	0.276	1.066
Social Media Use $\times$ Cognitive Reappraisal	13.32	0.042	0.569	0.570	1.041

Model: $R^2 = 0.011$; $F(3, 188) = 0.728$; $p = 0.537$.

As shown in Table 4, the overall moderation model was not statistically significant, $R^2 = 0.011$, $F(3, 188) = 0.728$, $p = 0.537$. Neither social media use ($B = 37.86$, $\beta = 0.029$, $p = 0.695$) nor cognitive reappraisal ($B = 164.80$, $\beta = 0.082$, $p = 0.276$) was significantly associated with physical activity. More importantly, the interaction between social media use and cognitive reappraisal was not significant ($B = 13.32$, $\beta = 0.042$, $p = 0.570$), indicating that cognitive reappraisal did not significantly moderate the relationship between social media use and physical activity. Thus, H2 was not supported.

The second moderation model examined whether expressive suppression moderated the relationship between social media use and physical activity. As with the cognitive reappraisal model, the interaction term between social media use and expressive suppression was used to determine whether expressive suppression significantly altered the strength or direction of this relationship. The results are presented in Table 5.

Table 5. Moderation Analysis of Expressive Suppression on the Relationship Between Social Media Use and Physical Activity

Predictor	B	β	t	p	VIF
Social Media Use	66.57	0.051	0.705	0.482	1.002
Emotion Suppression	329.00	0.148	1.995	0.048*	1.061
Media Use $\times$ Expressive Suppression	14.15	0.041	0.552	0.582	1.059

Model: $R^2 = .028$; $F(3.188) = 1.813$; $p = .146$.

As shown in Table 5, the overall moderation model was not statistically significant, $R^2 = 0.028$, $F(3, 188) = 1.813$, $p = 0.146$. Social media use was not significantly associated with physical activity ($B = 66.57$, $\beta = .051$, $p = 0.482$). Expressive suppression showed a small positive main effect on physical activity ($B = 329.00$, $\beta = 0.148$, $p = 0.048$). However, the interaction between social media use and expressive suppression was not statistically significant ($B = 14.15$, $\beta = 0.041$, $p = 0.582$). Thus, expressive suppression did not significantly moderate the relationship between social media use and physical activity, and H3 was not supported. The significant main effect of expressive suppression should therefore be interpreted as a direct association within the regression model rather than as evidence of a moderation effect.

DISCUSSION

This study examined whether cognitive reappraisal and expressive suppression moderate the relationship between social media use and physical activity among college students. Overall, the findings showed that social media use was significantly and

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positively associated with cognitive reappraisal but was not significantly associated with physical activity. Neither cognitive reappraisal nor expressive suppression significantly moderated the relationship between social media use and physical activity. Although expressive suppression showed a small significant positive association with physical activity in its respective regression model, the overall moderation model was not statistically significant. These findings indicate that emotion regulation strategies may be related to specific aspects of students' digital and behavioural experiences, but they do not appear to function as boundary conditions determining the strength of the relationship between social media use and physical activity. The findings therefore suggest that the relationship between digital behaviour and physical activity may depend on other psychological, behavioural, and environmental factors (Jeong et al., 2023; Mazzucato et al., 2026; Oba et al., 2024).

Social Media Use and Cognitive Reappraisal

The significant positive association between social media use and cognitive reappraisal ($r_s = 0.199$, $p = 0.006$) suggests that students with higher levels of social media use also tend to report greater use of cognitive reappraisal strategies. One possible explanation is that social media provides opportunities for individuals to obtain information, interact with peers, encounter alternative perspectives, and seek social support, which may contribute to the reinterpretation of emotionally challenging experiences. According to Gross's Process Model of Emotion Regulation, cognitive reappraisal involves changing the interpretation of a situation before the emotional response is fully generated (Gross, 1998). From this perspective, exposure to diverse information and social interactions through digital platforms may provide students with additional perspectives through which they interpret stressful or emotionally demanding situations (Wadley et al., 2020; Zhao, 2021).

However, the present finding should not be interpreted as evidence that social media use directly improves students' emotion regulation. The cross-sectional design does not establish temporal or causal direction, and the correlation was relatively small. Students who already possess stronger cognitive reappraisal tendencies may also be more likely to engage with social media for information seeking, communication, and social support. Therefore, longitudinal research is needed to determine whether patterns of social media use contribute to changes in cognitive reappraisal or whether individuals' pre-existing emotion regulation tendencies influence their social media behavior (Wiraputra, 2026; Zhan et al., 2025).

Social Media Use and Physical Activity

The absence of a significant relationship between social media use and physical activity ($r_s = 0.018$, $p = 0.808$) indicates that the general intensity of social media use was not associated with differences in physical activity levels in this sample. This finding is consistent with Morningstar et al. (2023), who reported that social media use was not necessarily associated with physical activity. However, it differs from studies suggesting that problematic or excessive social media use may be associated with sedentary behavior and lower physical activity (Brailovskaia et al., 2021; Wang, Wang et al., 2025).

One possible explanation for this inconsistency concerns the conceptualisation of social media use. The present study assessed general social media use, whereas some previous studies have focused specifically on problematic, addictive, or excessive patterns of use. General social media use may include both passive activities, such as scrolling and viewing content, and active activities, such as communicating, participating in online communities, or accessing health and exercise-related information. These different forms of use may have different behavioural consequences (Kaye et al., 2025).

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Perrigino et al., 2024). Consequently, the amount of social media use alone may be insufficient to explain physical activity behaviour. Other determinants, including exercise motivation, self-efficacy, academic workload, time availability, social support, and access to sports facilities, may have greater relevance to students' physical activity levels (Brown et al., 2024; Ferreira Silva et al., 2022; Yusfi et al., 2023).

Cognitive Reappraisal as a Moderator

The moderation analysis provided no evidence that cognitive reappraisal altered the relationship between social media use and physical activity. The interaction between social media use and cognitive reappraisal was not significant ($B = 13.32$, $\beta = 0.042$, $p = 0.570$), and the overall model explained only 1.1% of the variance in physical activity ($R^2 = 0.011$, $p = 0.537$). Thus, students with higher cognitive reappraisal did not demonstrate a substantially different relationship between social media use and physical activity compared with students with lower cognitive reappraisal.

This finding suggests that cognitive reappraisal may be relevant to emotional functioning without necessarily translating into physical activity behaviour. Although cognitive reappraisal is generally considered an adaptive emotion regulation strategy, the ability to reinterpret emotional experiences does not automatically imply greater engagement in physical activity. Physical activity requires additional behavioural resources, including motivation, opportunity, time, self-efficacy, and environmental support (Malkowski et al., 2025; Wei & Wang, 2026; Yusfi et al., 2023). This interpretation may help explain why studies examining direct associations between emotion regulation and physical activity do not necessarily produce the same findings as studies examining emotion regulation as a moderator. For example, Nie et al. (2025) reported a relationship between emotion regulation ability and physical activity, whereas the present study examined whether a specific emotion regulation strategy changed the relationship between social media use and physical activity. These are conceptually different analytical models and should therefore not be interpreted as contradictory evidence.

Expressive Suppression as a Moderator

Expressive suppression also did not significantly moderate the relationship between social media use and physical activity. The interaction between social media use and expressive suppression was not significant ($B = 14.15$, $\beta = 0.041$, $p = 0.582$). Therefore, expressive suppression cannot be considered a boundary condition that strengthens or weakens the association between social media use and physical activity in the present sample.

Interestingly, expressive suppression showed a significant positive regression coefficient in the model ($B = 329.00$, $\beta = 0.148$, $p = 0.048$). This result indicates that expressive suppression was positively associated with physical activity after accounting for social media use and the interaction term. However, this finding should be interpreted cautiously because the overall regression model was not statistically significant ($R^2 = 0.028$; $F(3,188) = 1.813$, $p = 0.146$), and the interaction effect itself was clearly non-significant. Therefore, the result does not provide sufficient evidence to conclude that expressive suppression meaningfully predicts physical activity at the population level.

The positive coefficient may also reflect sample-specific variation rather than a stable behavioural relationship. In particular, the use of expressive suppression does not necessarily imply that students engage in physical activity as a strategy for managing psychological stress. Such an interpretation would require additional measures and a design capable of establishing temporal relationships. Future studies should therefore

examine whether the relationship between emotion regulation and physical activity depends on specific contexts, such as academic stress, exercise motivation, social support, or coping style (Cassaretto et al., 2025; Jannah et al., 2025).

Explanatory Power of the Moderation Models

An important finding is the very low explanatory power of both moderation models. The cognitive reappraisal model explained only 1.1% of the variance in physical activity, whereas the expressive suppression model explained 2.8%. These results indicate that social media use and the two examined emotion regulation strategies account for only a small proportion of individual differences in physical activity.

This finding reinforces the multidimensional nature of physical activity behaviour. Among college students, physical activity may be influenced by individual-level factors such as self-efficacy, motivation, perceived competence, and psychological well-being, as well as interpersonal and environmental factors such as social support, academic demands, availability of sports facilities, and opportunities for active transportation (Brown et al., 2024; Wang et al., 2024). Therefore, the absence of significant moderation should not be interpreted as evidence that emotion regulation is irrelevant to physical activity. Rather, it suggests that emotion regulation alone may not be sufficient to explain when or for whom social media use is associated with physical activity.

Theoretical and Practical Implications

The findings contribute to the understanding of the relationship between digital behaviour, emotion regulation, and physical activity by demonstrating that cognitive reappraisal and expressive suppression did not function as moderators of the social media use–physical activity relationship. This result suggests that the theoretical relationship between digital behaviour and health behaviour may be more complex than a simple interaction between social media use and individual emotion regulation. Future models could incorporate additional psychological mechanisms, such as self-efficacy, behavioural intention, perceived stress, motivation, or self-control, as well as contextual variables such as social support and access to physical activity facilities (Mu et al., 2024; Wang et al., 2024; Zhang et al., 2025).

From a practical perspective, the findings suggest that interventions to increase physical activity among college students should not focus exclusively on reducing social media use. Universities may instead consider integrated health-promotion strategies that combine opportunities for physical activity with motivational support, accessible sports facilities, peer-based activities, and education on healthy digital behaviour. Social media itself may also be used as a platform for promoting physical activity through exercise challenges, peer support, health information, and university-based physical activity campaigns (Buja et al., 2024; Goodyear et al., 2021).

Limitations and Future Research

Several limitations should be considered when interpreting these findings. First, the cross-sectional design prevents causal or temporal conclusions regarding the relationships among social media use, emotion regulation, and physical activity. Longitudinal or experimental studies are therefore needed to determine whether changes in social media use or emotion regulation precede changes in physical activity. Second, all variables were assessed using self-report measures, including the GPAQ, which may be subject to recall and social desirability bias. Future research could combine self-report questionnaires with objective measures such as accelerometers or activity trackers. Third, participants were recruited through purposive sampling using an online survey, which limits the generalisability of the findings. Although participants were

recruited from universities across Indonesia, differences in academic discipline, year of study, residential environment, and access to physical activity facilities were not examined. Finally, the low explanatory power of the moderation models indicates that important determinants of physical activity were not included. Future studies should therefore consider more comprehensive models incorporating exercise self-efficacy, motivation, social support, academic stress, sleep, environmental opportunities, and different patterns of social media use (Sheng et al., 2025; Zhao et al., 2023).

CONCLUSION

This study found that social media use was positively associated with cognitive reappraisal but was not significantly associated with students' physical activity. Furthermore, neither cognitive reappraisal nor expressive suppression significantly moderated the relationship between social media use and physical activity. These findings suggest that emotion regulation strategies did not function as significant boundary conditions in the relationship between social media use and physical activity in this sample. The findings also indicate that students' physical activity may be influenced by other psychological, social, and environmental factors beyond those examined in this study. Future research should employ longitudinal or experimental designs and consider additional factors, such as exercise self-efficacy, motivation, social support, and environmental opportunities for physical activity, to provide a more comprehensive understanding of students' physical activity behaviour.

ACKNOWLEDGEMENTS

The authors would like to thank all participants who voluntarily contributed to this study, as well as the universities and individuals who supported the data collection process. The authors also acknowledge the PSIKONI team for their guidance and support throughout the preparation of this article.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest related to this study.

AI DISCLOSURE STATEMENT

The authors disclose the use of QuillBot solely for language and grammatical editing. All aspects of the scientific content, including its development, analysis, interpretation, and presentation, were undertaken by the authors without the assistance of generative AI tools.

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