

Perceived social support and school engagement in sports science students: The moderated mediation of school alienation and social media addiction

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Abstract:

Introduction and Purpose: This study investigated how sports science university students perceive social support (PSS), its influence on their academic engagement, and the mechanisms that mediate this relationship.

Methodology: A total of 466 students (316 males, 150 females) from the Faculty of Sports Sciences participated in the study, which used a relational screening model. Data were collected using the Multidimensional Perceived Social Support Scale, the University Students School Engagement Scale, the School Alienation Scale, and the Social Media Addiction Scale. The measurement model was validated through confirmatory factor analysis, followed by correlation testing and regression analysis using the Bootstrap method to evaluate the study's hypotheses. **Results:** The analysis identified a positive correlation between PSS and school engagement (SE) ($r = 0.45$, $p < 0.001$). In contrast, PSS showed negative correlations with both school alienation (SA) ($r = -0.209$, $p < 0.01$) and social media addiction (SMA) ($r = -0.113$, $p < 0.01$) (Hypothesis I). Regression analysis using the Bootstrap method revealed a significant indirect effect of PSS on SE via SA (Hypothesis II) [$\beta = 0.181$, $p < 0.001$, 95% Confidence Interval (CI) = (0.003, 0.039)]. Additionally, SMA moderated the indirect effect of PSS on SE via SA (Hypothesis III) [Situational mediator index = -0.018 , Boot SE = 0.001, Boot 95% CI = (-0.003 , -0.0001)]. The indirect effect was stronger for individuals with low SMA [Indirect effect = 0.034, Boot SE = 0.182, Boot 95% CI = (0.007, 0.078)] compared to those with high SMA [Indirect effect = 0.018, Boot SE = 0.009, Boot 95% CI = (0.005, 0.0416)]. **Conclusion:** The findings support all three hypotheses in the study's theoretical framework, confirming the proposed relationships and underlying mechanisms.

Keywords: Academic motivation, psychosocial factors, digital addiction, student success

Introduction

Perceived Social Support (PSS) and School Engagement (SE)

Although motivation is not directly observable, Personal Investment Motivation Theory posits that SE serves as an indicator of motivation in the classroom context (Maehr & Braskamp, 1986). Suh and Suh (2006) define SE as a combination of behavioral, psychological, and cognitive factors that influence a student's level of involvement in learning and play a crucial role in academic success. SE generally refers to students' positive attitudes toward teachers and peers, their sense of responsibility in the school, and their active participation in academic and extracurricular activities (Furlong et al., 2003; Jimerson et al., 2003). Comprising cognitive, emotional, and behavioral dimensions (Wang & Peck, 2013), SE is a key factor in understanding the value students place on education and the motivations that encourage them to remain in school (McInerney et al., 2005). SE is believed to support all aspects of student development and plays a crucial role in academic growth (Fredricks et al., 2004). Indeed, research by Finn and Rock (1997) found a positive correlation between SE and academic achievement. Supporting students' psychological well-being and academic success remains a challenge for educators, including principals, teachers, social workers, and psychologists (Datu & Valdez, 2016). Moreover, issues related to students' mental health and school adjustment have emerged as major public concerns, imposing significant economic and social burdens.

In addition to defining SE, Personal Investment Motivation Theory emphasizes the role of PSS as a key factor influencing SE (Maehr & Braskamp, 1986). Research has shown a positive relationship between SE and family social support (Simons-Morton & Chen, 2009) as well as peer communication (Ryan, 2000). A study by Marques et al. (2015) found that social support was generally related to more favorable school outcomes. Similarly, Klem and Connell (2004) highlighted the relationship between social support, school satisfaction, and positive academic values.

Conservation of Resources Theory states that PSS is a crucial factor in fostering the development of positive psychological resources (Newman et al., 2018). Individuals can receive emotional, informational, and appreciative support from their social networks (Ng et al., 2014). In the educational context, students often seek social support from family, teachers, and peers (Ng et al., 2017). Indeed, a study by Malecki and Demaray

(2002) found that family, teacher, and peer support were positively associated with students' adaptation to school.

Building on the literature regarding PSS and SE, it is hypothesized that PSS will positively predict SE. Therefore, the following hypothesis is proposed:

H¹: *There is a positive relationship between PSS and SE.*

The Mediating Role of School Alienation (SA)

Alienation is defined as a specific relationship between the individual and the world, marked by indifference, hostility, and apathy, which leads to individual suffering (Henning, 2015; Rosa, 2016). Several approaches have been used to describe and explain this phenomenon, including disengagement (Finn & Zimmer, 2013; Martin, 2013; Martin et al., 2011; Schunk & Mullen, 2013), amotivation (Legault, Green-Demers & Pelletier, 2006), discontent (Kinder et al., 1996; Reid, 1986), and alienation itself (Finn, 1989; Hadjar & Lupatsch, 2010; Hascher & Hagenauer, 2010; Newmann, 1981). Alienation from school can lead to outcomes such as behavioral disengagement from learning, deviant behavior, problematic educational trajectories, and school dropout at the individual, classroom, school, and societal levels (Avci & Çelikkaleli, 2016; Baker, 1998; Brown et al., 2003; Calabrese & Adams, 1990; Natvig et al., 2001; Sutherland, 2011; Studsrød & Bru, 2012). Furthermore, children who experience school alienation are at a higher risk of failing to complete basic education (Archambault et al., 2009).

Psychological factors are generally considered underlying causes of students' alienation from school. Therefore, PSS can serve as a protective factor. PSS refers to an individual's belief that adequate support will be available when needed (Barrera, 1986). It can help individuals cope with stressful life events by fostering feelings of value and acceptance and by activating effective coping mechanisms (Cohen & Wills, 1985). In other words, social support can be defined as the individual's perception of being cared for and valued by others, such as parents, peers, teachers, and community members (Saylor & Leach, 2009). Research (Rueger et al., 2010) indicates that individuals with higher levels of PSS exhibit better psychological adaptation. Thus, this study proposes that there is a negative relationship between PSS and SA.

Researchers, educators, and policymakers emphasize the importance of SE in countering the increasing rates of student alienation (Fredricks et al., 2004). Studies (Warner et al., 1999) have shown that alienation from school is strongly related to decreased engagement with peers, teachers, and the school itself. However, research also indicates that students' engagement and connection to school tend to decline over time, with even those who initially enjoy attending elementary school becoming disengaged and alienated (Hascher et al., 2011). Therefore, it is evident that SA negatively impacts SE. Accordingly, it is proposed that SA mediates the relationship between PSS and SE. Based on this, the following hypothesis is presented:

H²: *SA mediates the relationship between PSS and SE*

The Moderating Role of Social Media Addiction (SMA)

While PSS affects SE through SA, it is unlikely that all individuals experience the same level of SE. SMA may weaken the influence of PSS on SE.

Digitalization has become an integral part of modern societies. In 2015, 82% of adults aged 25-54 in Europe accessed the Internet via smartphones (Eurostat, 2016). In Austria, 94% of adults used their smartphones for more than three hours a day (Mobile Marketing Association Austria, 2018). Over the years, studies on frequent, excessive, and compulsive social networking behaviors, often referred to as "social media addiction" or "Facebook addiction," have increased (Tang et al., 2021). Addiction can have detrimental effects on users' physical, social, and psychological health. Physical consequences may include disorders affecting the brain, hearing, vision, and heart. Psychological effects of SMA include anxiety, sleep disturbances, fatigue, loneliness, and depression, while social consequences can involve academic decline, relationship problems, and social isolation (Chao et al., 2020; Garfin, Silver & Holman, 2020). This addiction has been linked to depression and social isolation in young people (Kraut et al., 1998). Additionally, parents' continuous virtual engagement has shifted interactions from traditional face-to-face communication to technology-based exchanges (Stern & Messer, 2009), which has had a considerable impact on family relationships and social dynamics. A study by Kildare and Middlemiss (2017) found that as adolescents increase smartphone usage, they tend to rate the quality of their relationships with their parents lower. Therefore, digital addiction negatively impacts the social support individuals receive from their families. A decrease in PSS can lead to increased SA in response to negative experiences at school. Similarly, as SMA increases, the relationship between students' level of alienation from school and their SE may vary. Thus, it is suggested that SMA moderates the relationships between PSS and SA, as well as between SA and SE.

SMA has become one of the most pressing issues of our time. It can be understood as a psychological problem that evolves through cognitive, affective, and behavioral processes, causing disruptions in various areas of daily life, including personal, academic, and interpersonal spheres (Tutgun-Ünal, 2015). However, recent studies have shown that excessive engagement with social media can negatively impact academic performance (Al-Menayes, 2014; Skiera et al., 2015). This has sparked debates among educators across different academic disciplines regarding the effectiveness and practicality of using social media as a teaching tool. It has been observed that students at all learning levels struggle to focus on their studies owing to the frequent use of social media (Chima et al., 2019), which in turn negatively affects their relationship with school. Consequently,

individuals who perceive greater social support are less likely to experience psychological problems in response to stressful events or other psychological distress (Cavanaugh & Buchler, 2016; Holt & Espelage, 2007). Based on theoretical insights and empirical evidence, it was concluded that SMA moderated both the direct and indirect relationships between PSS and SE. Therefore, the following hypothesis was formulated:

H³: SMA moderates the direct and indirect relationships between PSS and SE.

Current Research

This study examined the effect of PSS on SE among university students studying sports sciences and the underlying mechanisms of this effect. First, the relationship between PSS and SE was assessed. Second, the mediating effect of SA on the relationship between PSS and SE was explored. Finally, the moderated mediation effect of SMA on the direct and indirect relationship between PSS and SE through SA was investigated (Figure 1).

Materials and methods

Research Model

This study explores the impact of social media addiction on SE among university students studying sports sciences. Additionally, the mediating role of SA and the moderating role of PSS in this effect were examined. The research was designed using a relational screening model (Christensen et al., 2015). The theoretical model to be tested in the study is presented in Figure 1.

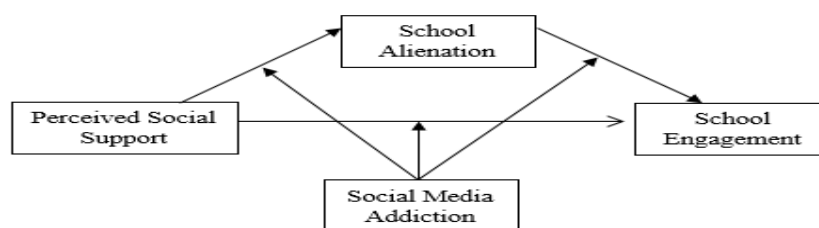


Figure 1: Proposed moderated mediation model

Participants

Measurement tools were administered to participants through online forms. To determine the participants, the "convenience sampling method" was used, where researchers selected the closest individuals until the required sample size was met (Cohen et al., 2011). In total, 477 students from sports science faculties at universities participated in the research. However, 11 students who provided incomplete responses were excluded from the analysis. The final study group consisted of 466 participants, with 316 (67.8%) male and 150 (32.2%) female students. The ages of the participants ranged from 19 to 26 years, with a mean age of 22.84 (SD = 2.24).

Data Collection Tools

Multidimensional Perceived Social Support Scale: The Multidimensional Perceived Social Support Scale is a 12-item scale consisting of three factors: family, friends, and a special person. It was developed by Zimet et al. (1988), with the validity and reliability analyses first performed by Eker and Akar (1995) and later by Eker et al. (2001) as part of its adaptation to Turkish. The Cronbach's alpha (α) reliability coefficients for the scale were calculated as follows: family dimension ($\alpha = 0.89$), friend dimension ($\alpha = 0.88$), special person dimension ($\alpha = 0.92$), and total scale ($\alpha = 0.89$). In this study, the factor structure of the Multidimensional Perceived Social Support Scale, comprising 3 sub-dimensions and 12 items, was tested using Level 2 confirmatory factor analysis (CFA). Owing to the normal distribution of the data, the maximum likelihood estimation method was used. However, the initial CFA results did not meet the goodness of fit values commonly accepted in the literature. Consequently, modification indices were examined, leading to 3 modifications (e5 \rightarrow e6, e10 \rightarrow e12, e11 \rightarrow e12). After these adjustments, the goodness of fit values (CMIN: 196.627, DF: 48, CMIN/DF: 4.096, GFI: 0.926, CFI: 0.961, RMSEA: 0.08) indicated that the 3-factor model was a good fit for the data and was deemed acceptable.

University Students' School Engagement Scale: The University Students' School Engagement Scale (USSE) is a 19-item scale comprising three factors: behavioral, emotional, and cognitive engagement. Developed by Fredericks et al. (2005) and adapted to Turkish by Akin et al. (2013) for validity and reliability analysis, this scale measures the extent of SE in university students. The test-retest reliability coefficients, which reflect the positive correlation between individuals' SE and their scale scores, were calculated as follows: behavioral sub-dimension (0.63), emotional sub-dimension (0.68), cognitive sub-dimension (0.67), and total (0.78). In this research, the factor structure of the USSE, which includes three sub-dimensions and a total of 15 items, was tested using Level 2 multi-factor CFA. Owing to the normal distribution of the data, the maximum likelihood estimation method was used. Initial results from the CFA did not yield the expected goodness of fit values. Consequently, modification indices were reviewed, and one item (USSE 6) in the affective commitment sub-dimension was excluded from the model owing to its high loading on another factor. After this adjustment,

the analysis was rerun. Additionally, two modifications ($e1 \rightarrow e5$, $e2 \rightarrow e3$) were made based on the correction indices. The final goodness of fit values from the CFA (CMIN: 310.057, DF: 72, CMIN/DF: 4.306, GFI: 0.911, CFI: 0.909, RMSEA: 0.064) indicated that the 3-factor model was a good fit and acceptable.

School Alienation Scale: The scale, developed by Şimşek et al. (2015), consists of 19 items and 4 factors (meaninglessness, powerlessness, rulelessness, social distance) designed to measure the level of students' alienation from school. Its construct validity was tested and found to be strong (CMIN/DF= 3.41; RMSEA = 0.06; GFI = 0.92; CFI = 0.89). Regarding reliability, the Cronbach alpha (α) coefficients were calculated as follows: meaninglessness sub-dimension (α : 0.78), powerlessness sub-dimension (α : 0.80), rulelessness sub-dimension (α : 0.76), social distance sub-dimension (α : 0.66), and total scale (α : 0.86). In this study, the factor structure of the SA scale, comprising 4 sub-dimensions and 19 items, was tested using Level 2 CFA. Given the normal distribution of the data, the maximum likelihood estimation method was used. However, the goodness of fit values did not meet the accepted thresholds in the literature. As a result, modification indices were reviewed, and item SA 19 in the social distance sub-dimension was excluded from the model owing to its high loading on another factor. The analysis was then repeated. Additionally, based on the correction indices, three modifications were made ($e6 \rightarrow e9$, $e12 \rightarrow e15$, $e17 \rightarrow e18$). The goodness of fit values obtained from the CFA (CMIN: 633.598, DF: 128, CMIN/DF: 4.950, GFI: 0.871, CFI: 0.891, RMSEA: 0.072) indicated that the 4-factor model was compatible with the data and acceptable.

Social Media Addiction Scale: This is a 5-point Likert-type scale consisting of a single factor and 7 items, developed by Çömlekçi and Başol (2019). It was adapted from the "impairment in functionality" dimension of the "Internet Addiction Scale" developed by Günüş (2009) to measure SMA. The construct validity of the scale was tested (CMIN:54.40, DF: 14 CMIN/DF: 3.88, RMSEA: 0.078, NFI: 0.96, NNFI: 0.95, CFI: 0.96, GFI: 0.95, AGFI: 0.89). Additionally, the Cronbach alpha (α) reliability coefficient of the scale was found to be 0.85. In this study, the factor structure of the SMA scale, consisting of a single factor and 7 items, was tested using Level 2 CFA. Given the normal distribution of the data, the maximum likelihood estimation method was applied. Initially, the goodness of fit values did not meet the accepted thresholds. Following this, modification indices were examined, and three modifications were made ($e2 \rightarrow e5$, $e3 \rightarrow e5$, $e6 \rightarrow e7$). After the modifications, the goodness of fit values obtained from the CFA (CMIN: 42.635, DF: 11, CMIN/DF: 3.876, GFI: 0.974, CFI: 0.984, RMSEA: 0.079) indicated that the single-factor model was compatible with the data and deemed acceptable.

Ethics Approval and Procedure

The data for this study were collected following approval from the Erzincan Binali Yıldırım University Human Research Ethics Committee (protocol no: 29.04.2022-04/06) and with the informed consent of the participants. Participants were informed of their right to withdraw from the study at any time. All procedures adhered to the ethical standards set by the 1964 Helsinki Declaration.

Statistical analysis

The data were analyzed using AMOS 26 and SPSS software (version 25.0). First, outliers and missing values were examined. The normality of the data was assessed using Mahalanobis distances, Z-scores, and skewness and kurtosis values of the calculated scale scores. Skewness and kurtosis values were expected to fall between +2 and -2 (George & Mallery, 2010), and Z-scores were verified to be in the acceptable range of -3 to +3. Furthermore, the linear relationships between the variables were assessed using scatter plots, which showed no deviations in the distribution. The correlation values between the variables were examined, and no multicollinearity issues were identified because no correlation exceeded 0.80 (Büyüköztürk, 2017). Additionally, tolerance values greater than 0.2 and VIF values below 10 indicated that there were no multicollinearity problems among the independent variables.

In this study, CFA was performed to test the factor structure of the measurement tools. According to Schumacker and Lomax (2004), the RMSEA value should be below 0.08, and the CFI and GFI values should be above 0.90. Additionally, the CMIN/DF ratio should be below 5, as stated by Schermelleh-Engel et al. (2003). After confirming the factor structure of the measurement tools, correlation tests and regression analyses using the Bootstrap method were applied to test the research hypotheses (Hayes, 2017). First, Harman's single-factor test was performed to assess potential common method bias. Next, descriptive statistics and Pearson correlations were calculated for the study variables. To examine the mediating effect of SA, Process Macro model 4 was used (Hayes, 2017). Finally, the moderating effect of SMA on the direct and indirect relationships between PSS and SE was tested using Process Macro model 59. For the hypotheses to be confirmed, the values in the 95% confidence interval (CI) must not include zero (Hayes, 2017; Preacher & Hayes, 2008).

Results

Common Method Bias

Common method bias refers to the "systematic error variance shared between variables measured and presented as a function of the same method and/or source" (Richardson et al., 2009). This bias can distort estimated relationships between criteria (Campbell & Fiske, 1959) and negatively affect the validity of the findings. Harman's single-factor test was performed to examine common method bias in the study (Zhou & Long, 2004). The results of the factor analysis indicated that 11 factors with eigenvalues greater than 1 were

extracted, accounting for 68.77% of the total variance. The first principal factor (eigenvalue: 11.72) alone explained 22.12% of the variance. These results indicate that no common method bias was present in this study.

Descriptive Statistics and Correlation Analysis

The mean, standard deviation, and correlation analysis results for the variables are presented in Table 1. A significant positive relationship was found between PSS and SE ($r = 0.45, p < 0.001$), and significant negative relationships were observed between SA ($r = -0.209, p < 0.01$) and SMA ($r = -0.113, p < 0.01$). Therefore, Hypothesis 1 was supported. Additionally, a significant negative relationship was identified between SE and SA ($r = -0.24, p < 0.001$).

Table 1: Descriptive statistics and relationships between variables (n = 464)

Variables	M ± SD	1	2	3	4
Perceived social support (1)	62.28 ± 16.88	1			
School engagement (2)	54.95 ± 9.47	0.450**	1		
School alienation (3)	50.04 ± 16.23	-0.209**	-0.240**	1	
Social media addiction (4)	15.29 ± 6.88	-0.113*	-0.066	0.482**	1

* $p < 0.01$, ** $p < 0.001$

Testing the Mediating Role

The study investigated whether school alienation mediated the relationship between PSS and SE (Hypothesis 2), tested using Process Macro model 4. As shown in Table 2, PSS was negatively related to SA [$\beta = -0.19, t = -4.59, p < 0.001, 95\% CI = (-0.284, -0.114)$], while SA was negatively related to SE [$\beta = -0.09, t = -3.65, p < 0.001, 95\% CI = (-0.139, -0.042)$]. Additionally, when the mediator variable (SA) was included in the model, PSS remained positively related to SE [$\beta = 0.23, t = 9.98, p < 0.001, 95\% CI = (0.190, 0.283)$]. According to the bootstrap analysis, the indirect effect of PSS on SE through SA was significant [$\beta = 0.018, p < 0.001, 95\% CI = (0.003, 0.039)$]. This finding confirms that SA mediates the relationship between PSS and SE, supporting Hypothesis 2.

Table 2: Mediating effect

Independent variables	Model 1 (DV: SchEn)			Model 2 (DV: SchAl)			Model 3 (DV: SchEn)		
	β	SE	t	β	SE	t	β	SE	t
Perceived social support	0.25	0.23	10.84***	-0.19	0.04	-4.59*	0.23	0.02	9.98***
School alienation							-0.09	0.02	-3.65**
R ²	0.20**			0.04*			0.22**		
Indirect effect = 0.018; Boot SE = 0.0092; Boot 95% GA = (0.0039, 0.0398)									

DV: dependent variable, SchEn: school engagement, SchAl: school alienation, ** $p < 0.01$, *** $p < 0.001$

Testing the Moderated Mediation Effect

The results from Process Macro model 59 indicate that while the interaction between PSS and SMA (PSSXSMA) did not significantly affect SE [$\beta = 0.003, t = 1.01, p > 0.001, 95\% CI = (-0.003, 0.018)$] or SA [$\beta = 0.007, t = 1.34, p > 0.001, 95\% CI = (-0.003, 0.019)$], the interaction between school alienation and social media addiction (SAXSMA) was a significant predictor of SE [$\beta = 0.008, t = 2.48, p < 0.001, 95\% CI = (0.001, 0.015)$].

This finding suggests that SMA moderates the effect of SA on SE. To better interpret the moderating effect of SMA on the relationship between SA and SE, the simple effect of SA on SE was examined at different levels of SMA (1 standard deviation below the mean and 1 standard deviation above the mean). This analysis helps to assess how SA influences SE at varying levels of SMA, highlighting the strength and direction of the relationship under different conditions.

The slope analysis revealed that the negative relationship between SA and SE was stronger in individuals with low SMA [$\beta = -0.176, t = -4.69, p < 0.001, 95\% CI = (-0.249, -0.103)$] compared to those with moderate SMA [$\beta = -0.125, t = -4.43, p < 0.001, 95\% CI = (-0.181, -0.07)$] (see Figure 1). However, the analysis showed that the negative relationship between SA and SE was not significant for individuals with high SMA [$\beta = -0.05, t = -1.338, p > 0.001, 95\% CI = (-0.125, -0.023)$].

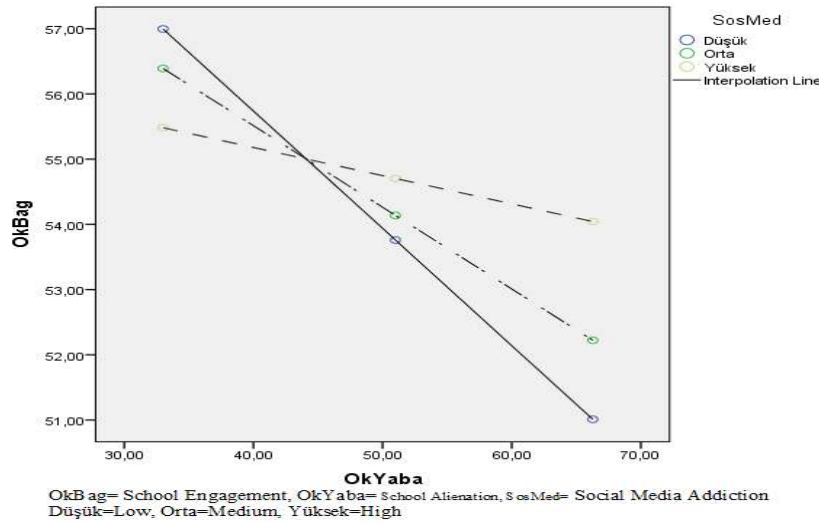


Figure 2: The moderating role of social media addiction in the relationship between school alienation and school engagement

Moreover, the study examined whether SMA moderated both the direct and indirect relationships between PSS and SE. First, the effect of SMA on the direct relationship between PSS and SE was assessed, and it was determined that SMA did not moderate this relationship [$\beta = -0.003$, $t = 1.00$, $p > 0.05$, 95% CI = (-0.007, 0.019)]. Then, the study investigated whether SMA moderated the indirect relationship between PSS and SE through SA. Bootstrap analysis results showed that SMA moderated the indirect effect of PSS on SE through SA [moderated mediation index = -0.018, Boot SE = 0.001, Boot 95% CI = (-0.003, -0.0001)], thus supporting Hypothesis 3. The analysis also revealed that the indirect effect was stronger in individuals with low SMA [Indirect effect = 0.034, Boot SE = 0.182, Boot 95% CI = (0.007, 0.078)] compared to those with high SMA [Indirect effect = 0.018, Boot SE = 0.009, Boot 95% CI = (0.005, 0.0416)]. These findings indicate that the indirect effect of PSS on SE through SA is more pronounced when SMA is lower.

Table 3: Moderated mediation effect

Independent variable	Model 1 (DV:SA)			Model 2 (DV:SE)		
	β	SE	t	β	SE	t
PSS	-0.25	0.08	-2.89**	0.17	0.05	3.27**
SMA	0.59	0.38	1.57	-0.58	0.26	-2.20*
PSS × SMA	0.007	0.005	1.34	-0.003	0.003	1.00
SA				-0.24	0.05	-4.11***
SA × SMA				0.008	0.003	2.48*
R ²	0.26***			0.24***		

Discussion

This study established a moderated mediation model to examine the mediating role of SA and the moderating effect of SMA on the relationship between PSS and SE among students in the Faculty of Sports Sciences. The results indicated that PSS directly influenced SE. Additionally, it was determined that PSS indirectly affected SE through SA. Furthermore, SMA was shown to moderate both the indirect relationship between PSS and SE, as well as the relationship between SA and SE.

Perceived Social Support and School Engagement

This study found a positive relationship between PSS and SE, indicating that students who perceived higher levels of social support exhibited greater SE. These findings align with previous research in the literature (Klem & Connell, 2004; Maerh & Braskamp, 1986; Marques et al., 2015; Ryan, 2000), which also highlighted the positive impact of PSS on students' engagement in school.

According to Personal Investment Theory, a positive relationship exists between SE and PSS (Maerh & Braskamp, 1986). This relationship not only supports students' academic achievements but also contributes to their overall development. By increasing the social support that students perceive, the likelihood of them experiencing psychological issues in response to stressful situations or other emotional challenges can be reduced (Cavanaugh & Buchler, 2016; Holt & Espelage, 2007). Consequently, students are better equipped to cope with negative experiences at school and can form stronger connections with their educational environment. Indeed, Rueger et al. (2010) demonstrated that increasing the social support perceived by individuals plays a crucial role in enhancing their psychological adaptation. Additionally, the study found that students' SE was

particularly influenced by the support they received from their families (Simons-Morton & Chen, 2009) and the quality of their communication with peers (Ryan, 2000).

Leonard (2002) proposed that the environment considerably influenced individuals' perceptions and behaviors. For students studying in sports sciences, the educational environment is unique in that it includes access to sports facilities and activities, which distinguishes them from students in other disciplines. Studies indicate that environments where sports activities are widespread and well-organized contribute to greater happiness and enjoyment of life (Tozoğlu et al., 2007). Moreover, these sporting environments positively impact university students by meeting their psychological and physiological needs, enhancing their abilities, and promoting improved social relationships (Gentile et al., 2007). Therefore, the sports facilities and physical infrastructure of universities play a crucial role in shaping the living conditions and overall quality of students' experiences (Yılmaz & Esentürk, 2020) while also promoting their social interactions (Evans et al., 2013). As a result, students in sports sciences faculties benefit from unique social support resources compared to students in other disciplines, which likely contributes to higher levels of SE.

This study, based on both theoretical and empirical foundations, confirmed the hypothesis that PSS was positively related to SE (Hypothesis 1).

The Mediating Role of School Alienation

In this study, it was determined that SA played a mediating role in the relationship between PSS and SE. This suggests that SA may not only be a consequence of PSS but also an indicator of SE. To our knowledge, this is the first study to test the mediating effect of SA in the relationship between PSS and SE.

In the first stage of the mediating analysis, the effect of PSS on SA was examined. One of the key factors for the academic, social, and psychological development of students, which forms the basis of a healthy social life, is their ability to feel happy and safe in their schools (Cenkseven Önder & Sarı, 2009). SA, which is often associated with concepts such as disengagement (Finn & Zimmer, 2013; Martin, 2013; Martin et al., 2011; Schunk & Mullen, 2013), amotivation (Legault et al., 2006), discontent (Kinder et al., 1996; Reid, 1986), and alienation (Finn, 1989; Hadjar & Lupatsch, 2010; Hascher & Hagenauer, 2010; Newmann, 1981), can lead to negative emotional outcomes that hinder student development. Therefore, individuals' SA can result in consequences such as behavioral disengagement from learning, deviant behavior, problematic educational trajectories, and even school dropout, which can have a broader impact on classrooms, schools, and society (Baker, 1998; Calabrese & Adams, 1990). Social support plays a critical role in enhancing positive mental resources and self-efficacy (Ren & Li, 2020), which can be pivotal in preventing such negative outcomes. Consequently, increasing the level of PSS may help students build resilience against negative experiences in school, ultimately reducing their alienation and promoting a stronger connection to their educational environment. Consistent with previous studies (Han et al., 2019; Schubert, Schmidt & Rosner, 2016; Ren & Li, 2020), the research findings demonstrate that PSS promotes positive mental health development and serves as a protective factor that enables individuals to adapt more effectively to challenges. As a result, individuals with high levels of PSS are more likely to seek assistance from family and friends when faced with stressful life events (Ford et al., 2007; Wang et al., 2018). Furthermore, the social support networks available to sports science students may be more extensive and diverse compared to those of other students, enhancing their overall well-being and resilience. Sports science students receive social support from various sources, including teammates, coaches, physiotherapists, psychologists, and managers within their sports discipline. This network of support helps students build resilience against factors that may lead to SA. As a result, perceived social support is considered a crucial factor in mitigating the potential for alienation in school environments.

The negative relationship found between SA and SE in this study aligns with previous research, such as Fredricks et al. (2004), which also highlighted the detrimental impact of SA on student engagement. As students experience alienation from their school, their emotional connection and investment in school activities diminish, leading to decreased school engagement. This alienation disrupts their relationships with the school environment, resulting in negative attitudes and reduced participation in school-related tasks.

The lack of social support and connections, characteristic of alienation, results in students feeling disconnected from their school, leading to feelings of loneliness and detachment (Bergin & Bergin, 2009). Alienation, as described in the literature (Mau, 1992; Seeman, 1975; Schulz, 2011), refers to a sense of not belonging, often accompanied by a disconnection from key social sources such as family, peers, or the school environment itself. Research has shown that alienated students typically fail to perceive positive aspects in their school experience, lacking the sense of community or attachment that enhances their engagement and well-being (Newmann, 1981). This highlights the importance of fostering supportive, inclusive school environments to combat feelings of alienation and promote student engagement. Alienation from school considerably impacts a student's overall quality of life and is a critical factor in other school-related issues, such as poor academic performance and behavioral problems. Extensive research has explored the causes of SA, often pointing to the challenges and negative experiences in the school environment as major contributors (Calabrese, 1987). Consequently, the relationship between SE and SA is strong and inversely related. In this study, based on both theoretical and empirical foundations, the hypothesis that SA mediates the relationship between PSS and SE was tested and confirmed (Hypothesis 2).

The Moderating Role of Social Media Addiction

In this study, it was determined that SMA weakened the relationship between PSS and SE. Specifically, the indirect effect of PSS on SE decreased as SMA increased. The increasing use of social networks in recent years has made them a common means of communication (Hardie & Tee, 2007; Hoy, 1972; Kwak et al., 2018). Continuous exposure to online platforms may lead individuals to develop an addiction to these social media tools over time (Griffiths et al., 2014). An individual's uncontrollable urge to continue using social media can eventually lead to addiction (Andreassen & Pallesen, 2014). Research on the consequences of SMA (Baker & Algorta, 2016; Kuss & Griffiths, 2011) indicates that it is a global issue, particularly affecting young people. Empirical evidence shows that social media platforms, such as Facebook, Twitter, and LinkedIn, are related to the development of emotional instability, which can result in psychological issues (Gabre & Kumar, 2012). In addition to the mental, physical, and health effects, excessive use of these platforms can also decrease students' interest in school (Baker & Algorta, 2016; Masthi et al., 2018). When students spend excessive time on social media, they may experience psychological issues such as loneliness, social anxiety, and low self-esteem (Caplan, 2007; Herruzo et al., 2020; Valkenburg et al., 2006). As a result, students addicted to social media are more likely to develop negative feelings and thoughts about their school environment. Furthermore, recent studies have shown that excessive engagement with social media can negatively affect academic performance (Al-Menayes, 2014; Skiera et al., 2015). In light of these findings, it can be concluded that SMA negatively impacts students' relationships with their schools. SMA also negatively impacts students' interpersonal relationships, introducing a distinct mode of communication that can strain connections with family, peers, and teachers. As a result, students' social support resources may become insufficient owing to the distractions and isolation caused by excessive social media use. In this study, it was observed that SMA weakened the positive effect of PSS on SE. Furthermore, it was determined that SMA was positively associated with higher levels of SA among students.

Conclusions

Future research could consider exploring additional instrumental variables that influence the relationship between PSS and school commitment at universities. Specifically, the negative aspects of social media technology could be tested as an effective variable. This study used Process Macro model 59, but subsequent research could involve testing the relationships between variables across different models.

Conflicts of interest:

The authors declare no conflict of interest.

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