

Original Research

Emotional Intelligence and motivation: predictive model of psychological well-being and the intention to be physically active

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Abstract: The main objective of this cross-sectional study was to examine the role of emotional intelligence within the motivational sequence proposed by Self-Determination Theory in Physical Education, analyzing how teachers' motivational climates influence the satisfaction of students' basic psychological needs, self-determined motivation, and, in turn, outcomes such as psychological well-being and the intention to engage in physical activity. For it, a questionnaire was administered to 495 Physical Education students (Mean Age = 12.65 years; SD = 1.55), and a path analysis was carried out. The results of the model showed that the task climate positively predicted basic psychological needs, while the ego climate did so negatively. In turn, the satisfaction of these needs positively predicted emotional intelligence and self-determination index. For its part, emotional intelligence, like the self-determination index, positively predicted the intention to be physically active and self-esteem. Likewise, self-esteem also predicted satisfaction with life. It is important to note that, given the study's cross-sectional design, the relationships observed are associative, not causal. In conclusion, in the similar sequence proposed by the Self-Determination theory, emotional intelligence could have effects like those of motivation.

Keywords: Self-determination theory, Emotional intelligence, Self-esteem, Life satisfaction, Physical activity, Compulsory education, Physical education.

1. Introduction

Physical Education (PE) classes represent an ideal context to promote students' participation in physical activity

and sports during leisure time, as well as to enhance their overall well-being. In this

regard, the experiences and motivation students encounter in PE classes



may play a crucial role (Bagøien et al., 2010; Erturan-Ilker, 2014; Standage et al., 2012; Vasconcellos et al., 2020).

Within PE research, Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000; Ryan & Deci, 2017, 2020) and Achievement Goal Theory (AGT; Maehr & Zusho, 2009; Nicholls, 1989) have been the primary frameworks for studying motivation. SDT posits that motivation exists along a continuum of self-determination, ranging from intrinsic motivation to amotivation, with various forms of extrinsic motivation in between (Deci & Ryan, 2000; Ryan & Deci, 2000, 2017; Vansteenkiste et al., 2010). Intrinsic motivation refers to engaging in activities for the inherent enjoyment or interest they provide, whereas amotivation reflects a lack of intention or interest. Between these extremes lie different forms of extrinsic motivation: integrated regulation, identified regulation, introjected regulation, and external regulation. External regulation involves behaviors driven by rewards and punishments. Introjected regulation refers to actions taken to avoid negative feelings such as guilt or anxiety, or to gain recognition that reinforces the ego. Identified regulation occurs when individuals consciously value an activity, leading to a high degree of personal volition. Integrated regulation, the most autonomous form of extrinsic motivation, arises when individuals not only value the activity but also perceive it as aligned with their broader interests and personal values (Ryan & Deci, 2020). The combination of these motivational forms is captured in the Self-Determination Index (SDI; Ryan & Deci, 2017), which reflects the overall level of self-determination in an

individual's motivational profile (Vallerand, 2001).

SDT also posits that social factors, such as the motivational climate created by the PE teacher, influence students' motivation through the satisfaction of basic psychological needs (BPNs; i.e., competence, autonomy, and relatedness). The fulfillment of these needs is associated with more self-determined forms of motivation, whereas their frustration is linked to controlled forms of motivation and amotivation (Ryan & Deci, 2017). In recent years, several additional candidates for BPNs have been proposed (Vansteenkiste et al., 2020, 2023), with Novelty emerging as particularly well-supported, meeting many of the criteria established by experts (Ryan & Deci, 2017; Vansteenkiste et al., 2020, 2023). Novelty is defined as experiencing something new or different from the daily routine (González-Cutre et al., 2016). Given its relationship with self-determined motivation (Fernández-Espínola et al., 2020; Fierro-Suero et al., 2020; González-Cutre & Sicilia, 2019) and intentions to be physically active (Aibar et al., 2021; Fierro-Suero et al., 2024), it has been included in the present study.

According to SDT (Deci & Ryan, 1985, 2000), social factors play a key role in influencing students' basic psychological needs and motivation. Complementing this perspective, Vallerand's (1997, 2001) hierarchical model of motivation proposes a sequence in which social factors influence the satisfaction of basic psychological needs, which in turn affects self-determined motivation and subsequent cognitive, affective, and behavioral outcomes (Van den Berghe et al., 2014).

In the context of physical education, teachers' motivational climates, as conceptualized by Achievement Goal Theory (AGT; Nicholls, 1989; Maehr & Zusho, 2009), serve as concrete indicators of these social factors, distinguishing between task-involving climates that emphasize personal effort and mastery, and ego-involving climates that emphasize social comparison and normative performance. This concept has been defined as a set of perceived cues in the environment that signal what constitutes success and failure (Ames, 1992). Research has shown that a task-involving climate helps PE students satisfy their needs for competence, autonomy, and relatedness (Cox & Williams, 2008; Méndez-Giménez *et al.*, 2013), whereas an ego-involving climate is either not associated with these feelings of satisfaction (García-González *et al.*, 2019; Ommundsen & Kvalø, 2007) or is negatively associated (e.g., Rodrigues *et al.*, 2020).

In recent years, alongside motivational research, studies in PE have increasingly focused on the role of emotional intelligence (EI) and students' emotions in motivational processes (Fernández-Espínola & Almagro, 2019). Already in the 1990s, Goleman (1995) considered motivation a key component in the development of EI, defining EI as the capacity to recognize and manage one's own emotions, understand the emotions of others, establish relationships, and self-motivate. Currently, discussions of EI typically refer to one of the many existing models (Bisquerra, 2020). One of the most widely used models in the scientific literature, and the focus of the present study, is Bar-On's (1997, 2000) mixed model. Bar-On (2000) defines EI as a set of interrelated emotional and social competencies and skills

that determine how we understand and express ourselves, understand others, and interact with them (Ferrándiz *et al.*, 2012). The model comprises five components (Bar-On, 2000; Bisquerra, 2020): 1) intrapersonal intelligence (the ability to recognize and understand one's own emotions and communicate them to others); 2) interpersonal intelligence (the ability to perceive and understand the emotions of others); 3) adaptability (the capacity to be flexible and solve problems); 4) stress management (the ability to tolerate stress and control impulses); and 5) general mood (the capacity to maintain happiness and optimism in life).

Regarding the relationship between motivation and EI, research has generally shown a positive association between EI and both the satisfaction of psychological needs and more self-determined forms of motivation (e.g., Bechter *et al.*, 2023; Cera *et al.*, 2015; Gómez-López *et al.*, 2025; Fierro-Suero *et al.*, 2019; Rodríguez-González *et al.*, 2021; Vaquero-Solís *et al.*, 2020). Moreover, the satisfaction of BPNs has been identified as a positive predictor of EI (e.g., Fierro-Suero *et al.*, 2019; Gómez-López & Granero-Gallegos, 2020), whereas their frustration predicts EI negatively (Trigueros, Aguilar-Parra, *et al.*, 2019). Likewise, EI has been positively associated in various contexts with motivational outcomes such as psychological well-being and the intention to be physically active in PE students (Méndez-Giménez *et al.*, 2020; Rey *et al.*, 2011). According to SDT, satisfying BPNs can enhance individuals' psychological well-being (Ryan & Deci, 2017), which has been measured in studies using indicators such as life satisfaction and self-esteem (e.g., Balaguer *et al.*, 2008;

Fernández-Ozcorta et al., 2014; Fierro-Suero et al., 2019). Concerning the intention to be physically active, conceptualized as the immediate precursor of behavior (Ajzen, 1985) and related to increased exercise participation (Hagger & Chatzisarantis, 2014), previous research has shown that BPN satisfaction and more self-determined forms of motivation are positively associated with this variable (Vasconcellos et al., 2020; White et al., 2021).

Despite these findings, scientific literature on the relationship between EI and motivation remains scarce (Fernández-Espínola & Almagro, 2019). To date, limited attention has been paid to the role of EI within the motivational sequence proposed by SDT, particularly in physical education contexts. Therefore, the aim of this study was

to analyze, in the context of PE, the influence of EI within the SDT motivational sequence, testing a model in which motivational climates, BPN satisfaction, EI, the Self-Determination Index, intention to be physically active, and two indicators of psychological well-being (life satisfaction and self-esteem) were interrelated. The hypotheses (Figure 1) were: 1) Task-involving and ego-involving climates will positively and negatively predict BPN satisfaction, respectively; 2) BPN satisfaction will positively predict EI and the Self-Determination Index; 3) EI and the Self-Determination Index will be positively associated with self-esteem, life satisfaction, and the intention to be physically active.

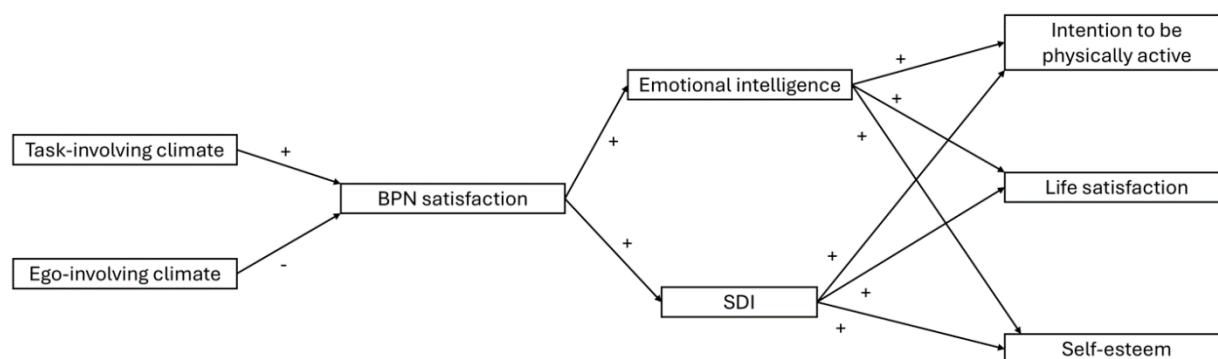


Figure 1. Hypothesized model of motivational climates, BPN satisfaction, EI, the Self-Determination Index, intention to be physically active, and psychological well-being.

Note. BPN = Basic Psychological Needs; SDI = Self-Determination Index

2. Materials and Methods

Participants - The study sample consisted of 495 PE students. The inclusion criteria required participants to be enrolled from 5th grade of Primary School to 4th grade of Secondary Education, from seven public schools in the province of Huelva,

Spain. Specifically, the sample included 222 boys and 273 girls, with ages ranging from 10 to 18 years ($M = 12.65$, $SD = 1.55$). The exclusion criteria excluded students with those who did not complete the questionnaire. A convenience sampling method was used to select all participants.

Students attended two physical education sessions per week.

Motivational climate: The version designed and validated by Cervelló et al. (2007), based on Ames' (1992) motivational intervention model, was used. This questionnaire comprised 24 items grouped into two dimensions (12 items per dimension): task-involving climate (e.g., "We are encouraged to help each other during activities") and ego-involving climate (e.g., "Only the final result is evaluated, regardless of my progress from before"). Items were preceded by the phrase "In PE classes..." and responses were given on a Likert-type scale ranging from 0 (Strongly disagree) to 10 (Strongly agree). Reliability coefficients were .80 for task-involving climate and .79 for ego-involving climate. The CFA showed acceptable fit indices ($\chi^2 / df = 2.05$, CFI = .91, IFI = .92, TLI = .90, SRMR = .05, RMSEA = .046).

Basic Psychological Needs (BPNs): The latest version of the Basic Psychological Needs Scale (González-Cutre & Sicilia, 2019), an adaptation of the Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006) for the Spanish educational context that included the need for novelty, was used. The scale comprised 17 items grouped into four dimensions (four items per dimension, except for novelty, which included five items): autonomy (e.g., "I have the opportunity to choose how to perform exercises"), competence (e.g., "I perform exercises effectively"), relatedness (e.g., "I feel comfortable exercising with other classmates"), and novelty (e.g., "I often discover new things"). Items were preceded by the phrase "In my PE classes..." Responses were rated on a 5-point Likert-

type scale from 1 (Strongly disagree) to 5 (Strongly agree). Internal consistency was .70 for autonomy, .68 for competence, .80 for relatedness, and .84 for novelty. Factorial validity of the Psychological Needs Scale was examined using confirmatory factor analysis (CFA), which offered acceptable fit indices ($\chi^2 / d = 2.98$, CFI = .93, IFI = .93, TLI = .91, SRMR = .05, RMSEA = .060).

Self-Determination Index (SDI): The Perceived Locus of Causality (PLOC) Scale adapted to the Spanish context by Moreno-Murcia et al. (2009) from the original PLOC (Goudas et al., 1994) was used. The scale consisted of 20 items grouped into five dimensions (4 items per dimension): intrinsic regulation (e.g., "Because PE is fun"), identified regulation (e.g., "Because I want to learn sports skills"), introjected regulation (e.g., "Because I would feel bad about myself if I didn't"), external regulation (e.g., "Because I would get into trouble if I didn't"), and amotivation (e.g., "I don't understand why we have to do PE"). Responses were scored on a 7-point Likert-type scale from 1 (Strongly disagree) to 7 (Strongly agree), with items preceded by the phrase "I participate in PE classes." Internal consistency values were .80 for intrinsic regulation, .83 for identified regulation, .66 for introjected regulation, .65 for external regulation, and .74 for amotivation. The data from this study revealed adequate psychometric properties of the PLOC in PE using CFA ($\chi^2 / df = 2.50$, CFI = .93, IFI = .93, TLI = .93, SRMR = .054, RMSEA = .055). The SDI was calculated using the mean scores of each motivational subscale. Specifically, the SDI was computed using the following formula (Vallerand, 2001): $(2 \times \text{intrinsic regulation} + \text{identified$

regulation) – $[2 \times (\text{introjected regulation} + \text{external regulation}) + 2 \times \text{amotivation}]$.

Emotional Intelligence (EI): The Spanish-adapted version of the Emotional Quotient Inventory: Young Version (EQ-i:YV; Bar-On, 2000) by Ferrándiz et al. (2012) was used. The scale included 60 items grouped into five dimensions: intrapersonal competence (6 items; e.g., “I find it easy to tell people how I feel”), interpersonal competence (12 items; e.g., “I understand well how others feel”), stress management (12 items; e.g., “I get angry easily”), adaptability (10 items; e.g., “When asked difficult questions, I try to respond in different ways”), and general mood (14 items; e.g., “I generally expect the best”). The remaining 6 items formed the positive impression scale (e.g., “I like every person I meet”), designed by the author to detect exaggeratedly positive self-perceptions. Responses were rated on a 5-point Likert-type scale from 1 (Strongly disagree) to 5 (Strongly agree). Cronbach’s alpha values were .69 for intrapersonal intelligence, .75 for interpersonal intelligence, .79 for stress management, .78 for adaptability, and .82 for general mood, with .88 for the full scale. Total EI scores were calculated by combining the intrapersonal, interpersonal, stress management, and adaptability dimensions, excluding the general mood factor. This decision was based on theoretical and empirical considerations of the Bar-On model (Bar-On, 2000), as general mood (i.e., optimism and happiness) is conceptually closer to indicators of psychological well-being than to core emotional competencies. This approach is consistent with previous studies using the EQ-i in educational and physical education contexts (e.g., Ferrándiz

et al., 2012; Fernández-Ozcorta et al., 2014; Fierro-Suero et al., 2019). The confirmatory factor analysis showed an acceptable model fit, with good absolute fit indices ($\chi^2/\text{df} = 1.86$, RMSEA = .042, SRMR = .06), although incremental fit indices were slightly below the conventional .90 cutoff (CFI = .86, IFI = .88, TLI = .85). Lower incremental fit indices may be partially explained by the complexity of the instrument and the number of observed variables, as well as by the age of the sample.

Self-Esteem: The Spanish translation by Martín-Albo et al. (2007) of the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1989) was used. The scale consisted of 10 items, five positively worded (e.g., “Overall, I am satisfied with myself”) and five negatively worded (e.g., “Sometimes I think I am good for nothing”). Items were scored on a 4-point Likert-type scale from 1 (Strongly disagree) to 4 (Strongly agree). Cronbach’s alpha was .79. The CFA showed acceptable fit indices ($\chi^2/\text{df} = 3.43$, CFI = .95, IFI = .95, TLI = .91, SRMR = .052, RMSEA = .070).

Life Satisfaction: The Spanish adolescent version of the Satisfaction with Life Scale (SWLS; Diener et al., 1985) by Atienza et al. (2000) was used. The scale comprises five items measuring cognitive judgments of life satisfaction (e.g., “If I could live my life over, I would do it the same way”). Items were preceded by the phrase “Regarding your life in general...” Responses were scored on a 5-point Likert-type scale from 1 (Strongly disagree) to 5 (Strongly agree). Internal consistency was .77. The CFA indicated an acceptable model fit ($\chi^2/\text{df} = 1.92$, CFI = .99, IFI = .99, TLI = .99, SRMR = .02, RMSEA = .043).

Intention to Be Physically Active: The Spanish-adapted version by Moreno-

Murcia et al. (2007) of the Intention to be Physically Active Scale (IPAS; Hein et al., 2004) was used. Items were preceded by the phrase “Regarding your intention to engage in physical activity...” and included five items measuring the intention to be physically active (e.g., “I usually engage in sports during my free time”). Responses were given on a 5-point Likert-type scale from 1 (Strongly disagree) to 5 (Strongly agree). Reliability was .81. The CFA demonstrated a model fit close to acceptable standards ($\chi^2/df = 4.21$, CFI = .99, IFI = .99, TLI = .96, SRMR = .02, RMSEA = .08).

Procedure - This study was conducted in accordance with current Spanish legislation on research involving human participants and the ethical principles of the American Psychological Association (2020). First, approval was obtained from the Biomedical Research Ethics Committee of Andalusia (approval code: TD-OCME-2018). The next step in data collection involved contacting the administrative teams of each school to inform them about the study's objectives and request their collaboration. Subsequently, because the sample consisted of minors, written informed consent was obtained from their legal guardians. Once consent forms were collected, the questionnaires were administered in the presence of the principal investigator, who provided a brief and clear explanation of the study objectives, gave instructions on how to complete the questionnaires, and addressed any questions that arose during item comprehension. Emphasis was also placed on the anonymity of responses and the importance of answering honestly.

Data Analysis - First, reliability analyses were conducted, and the study

variables were computed. Next, descriptive statistics and bivariate correlations for these variables were calculated. To examine indirect effects, multiple mediation analyses were conducted following the procedures outlined by Preacher and Hayes (2008), with confidence intervals for indirect effects obtained via bootstrapping.

To assess model validity, the following goodness-of-fit indices were considered: the Comparative Fit Index (CFI), the Incremental Fit Index (IFI), the Tucker-Lewis Index (TLI), the chi-square to degrees of freedom ratio (χ^2/df), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA) along with its 90% confidence interval (CI). Good model fit is generally indicated by CFI, IFI, and TLI values above .90 (Hu & Bentler, 1995), RMSEA and SRMR values of .08 or lower (Browne & Cudeck, 1993; Hu & Bentler, 1999), and a χ^2/df ratio between 2 and 3 (Schermele-Engel et al., 2003). All analyses were conducted using structural equation modeling (SEM) in AMOS 23. Indirect effects were tested within the SEM framework using bias-corrected bootstrapping procedures with 5,000 resamples.

3. Results

Table 1 presents the descriptive statistics (mean, standard deviation, skewness, and kurtosis) and bivariate correlations. Correlation analyses showed that all study variables were positively and significantly associated with each other, except for ego-involving climate, which was negatively and significantly associated with the other variables. The results of the hypothesized model showed that all the

hypothesized predictive relationships were significant and aligned with the proposed expectations. However, the model did not exhibit adequate fit indices: $\chi^2 = 331.44$, $p < .001$, $\chi^2/df = 19.50$, CFI = .75, IFI = .76, TLI = .60, SRMR = .11, RMSEA = .19, 90% CI [.18,

.21]. To improve model fit, modification indices were examined.

Table 1. Descriptive statistics and bivariate correlations of the study variable

Variables	Range	M	SD	Skew	Kurt	1	2	3	4	5	6	7	8
1. Task climate	0-10	6.55	1.71	-.38	-.18	-	-.46**	.46**	.22**	.38**	.15**	.25**	.19**
2. Ego climate	0-10	3.12	1.77	.43	-.43	-	-	-.38**	-.20**	-.54**	-.19**	-.29**	-.34**
3. BPN	1-5	3.73	.70	-.64	.49	-	-	-	.41**	.59**	.53**	.37**	.25**
4. Total EI	1-5	3.64	.35	-.08	.35	-	-	-	-	.23**	.33**	.50**	.29**
5. SDI	-13-17.2	7.51	6.06	-.81	.18	-	-	-	-	-	.50**	.27**	.30**
6. Intention	1-5	4.07	.93	-1.11	.61	-	-	-	-	-	-	.24**	.21**
7. Satisfaction	1-5	4.10	.74	-.87	.29	-	-	-	-	-	-	-	.56**
8. Self-esteem	1-4	3.18	.54	-.60	.18	-	-	-	-	-	-	-	-

Note. $p < .01$; BPN = Basic Psychological Needs; EI = Emotional Intelligence; SDI = Self-Determination Index; Range = RG; M = Mean; SD = Standard Deviation; Skew = Skewness; Kurt = Kurtosis.

These suggested that the model could be improved by adding a direct path from ego-involving climate to SDI, from BPN satisfaction to intention to be physically active, and from self-esteem to life satisfaction. Following these adjustments, considerable improvements in fit indices were observed: $\chi^2 = 62.411$, $p < .01$, $\chi^2/df = 4.45$, CFI = .96, IFI = .96, TLI = .92, SRMR = .05, RMSEA = .08, 90% CI [.063, .11].

Subsequently, it was observed that the path between SDI and life satisfaction was not significant in this revised model and was therefore removed. After this removal, modification indices suggested adding a direct path from BPN satisfaction to life satisfaction and from ego-involving climate to self-esteem. Again, the fit indices improved considerably: $\chi^2 = 30.722$, $p < .01$, $\chi^2/df = 2.36$, CFI = .99, IFI = .99, TLI = .97, SRMR = .03, RMSEA = .06, 90% CI [.029, .077]. These results met the established criteria, and this model was therefore accepted as valid,

although the initial model was fully theory-driven, the final model included additional paths suggested by modification indices. Therefore, results derived from the final model should be interpreted with caution, as they partly reflect an exploratory analytical process.

The final model results (see Figure 2) showed that task-involving climate positively predicted BPN satisfaction ($\beta = .37$, $p = .020$), while ego-involving climate negatively predicted it ($\beta = -.21$, $p = .003$). BPN satisfaction, in turn, positively predicted SDI ($\beta = .45$, $p = .008$) and total EI ($\beta = .40$, $p = .009$). SDI was negatively predicted by ego-involving climate ($\beta = -.37$, $p = .028$).

Regarding intention to be physically active, it was positively predicted by BPN satisfaction (direct effects: $\beta = .30$, $p = .012$; indirect effects: $\beta = .19$, $p = .003$), SDI ($\beta = .29$, $p = .003$), and total EI ($\beta = .14$, $p = .008$). For psychological well-being variables, self-

esteem was positively predicted by SDI ($\beta = .16, p = .015$) and EI ($\beta = .52, p = .007$), and negatively by ego-involving climate (direct effects: $\beta = -.23, p = .018$; indirect effects: $\beta = -.08, p = .014$). Life satisfaction was positively predicted by BPN satisfaction (direct effects:

$\beta = .20, p = .005$; indirect effects: $\beta = .20, p = .010$), total EI (direct effects: $\beta = .42, p = .018$; indirect effects: $\beta = .09, p = .018$), and self-esteem ($\beta = .44, p = .015$).

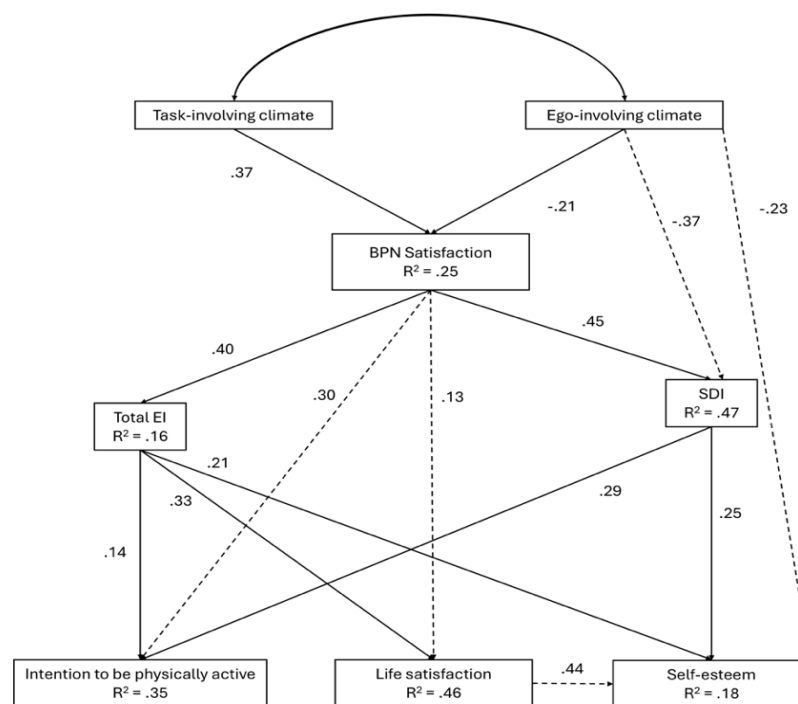


Figure 2. Final model of the relationships between motivational climates, BPN, EI, SDI, psychological well-being, and intention to be physically active in the future. Standardized regression weights are shown. Solid lines represent hypothesized paths, whereas dashed lines indicate paths added based on modification indices. R² = explained variance; BPN = Basic Psychological Needs; EI = Emotional Intelligence; SDI = Self-Determination Index.

Additional indirect effects were observed for the three outcome variables. Specifically, task-involving and ego-involving climates showed significant indirect associations with intention to be physically active through BPN satisfaction and self-determination. Moreover, task-involving climate, BPN satisfaction, and EI were indirectly related to self-esteem and life satisfaction through sequential mediational pathways. A complete summary of all indirect effects is provided in Table 2.

Explained variances were 25% for BPN satisfaction, 16% for total EI, 47% for

SDI, 35% for intention to be physically active, 18% for self-esteem, and 46% for life satisfaction. These findings provide further support for the mediating role of basic psychological need satisfaction, self-determination, and emotional intelligence within the proposed motivational sequence.

4. Discussion

The aim of this study was to examine the role that EI may play in the motivational sequence proposed by SDT. To this end, a model was tested in which motivational climates were related to the satisfaction of

BPN. BPN satisfaction was related to the SDI and EI, and these, in turn, were related to three outcomes: future intention to be physically active, self-esteem, and life satisfaction.

Table 2. Indirect effects and mediating pathways

Outcome variable	Predictor	Mediator(s)	Indirect effect (β)	95% Bootstrap CI
Intention	BPN	SDI	.19	[.13, .25]
	Task-climate	BPN $\rightarrow$ SDI	.18	[.13, .23]
	Ego-climate	BPN $\rightarrow$ SDI	-.21	[-.27, -.16]
	Ego-climate	BPN $\rightarrow$ EI	-.08	[-.13, -.03]
Self-esteem	Task-climate	BPN $\rightarrow$ EI	.05	[.03, .08]
	BPN	EI	.14	[.09, .20]
	BPN	Self-esteem	.20	[.15, .24]
	EI	Self-esteem	.09	[.05, .14]
Life satisfaction	Task-climate	BPN $\rightarrow$ EI $\rightarrow$ Self-esteem	.12	[.08, .16]
	Ego-climate	BPN $\rightarrow$ EI $\rightarrow$ Self-esteem	-.19	[-.24, -.14]
	SDI	Self-esteem	.05	[.01, .10]

Note. Indirect effects were estimated using structural equation modeling with bias-corrected bootstrapping procedures (5,000 resamples). Mediating pathways reflect the sequence of variables specified in the final structural model. β values represent standardized indirect effects. Effects were considered statistically significant when the 95% confidence interval did not include zero. BPN = Basic Psychological Needs; SDI = Self-Determination Index; EI = Emotional Intelligence.

Consistent with the first hypothesis, the results showed that, in the context of PE, task-involving climate positively predicted overall BPN satisfaction, whereas ego-involving climate predicted it negatively. These findings are partially in line with previous studies, in which task-involving

climate was a positive predictor of these psychological mediators (García-González et al., 2019; Rodrigues et al., 2020). However, regarding the predictive relationship between ego-involving climate and BPN satisfaction, previous results have been mixed and inconsistent. For instance,

García-González *et al.* (2019) found no significant association, whereas Rodrigues *et al.* (2020) reported a significant negative predictive effect of ego-involving climate on BPN satisfaction. Both current and previous findings suggest that PE teachers should foster a task-involving climate while avoiding an ego-involving climate, as these climates have positive and negative effects, respectively, on students' cognitive, behavioral, and affective outcomes (Braithwaite *et al.*, 2011). Notably, although not hypothesized, in the present study, ego-involving climate also emerged as a negative predictor of SDI and self-esteem.

Furthermore, consistent with the second hypothesis, BPN satisfaction positively and significantly predicted SDI. This result aligns with SDT and prior research (Fernández-Espínola *et al.*, 2020; Fierro-Suero *et al.*, 2020; González-Cutre *et al.*, 2020; González-Cutre & Sicilia, 2019; Koka *et al.*, 2021; Trigueros, Mínguez, *et al.*, 2019), where psychological need satisfaction positively predicted more self-determined forms of motivation. Continuing with the second hypothesis, EI was also positively predicted by BPN satisfaction. Although the literature on the role of EI in human motivation is scarce, these findings are partially consistent with previous studies in which EI was positively predicted by certain BPN, such as competence (Fierro-Suero *et al.*, 2019) and relatedness (Gómez-López & Granero-Gallegos, 2020). A similar relationship has also been found from the "dark side" of SDT: specifically, Trigueros, Aguilar-Parra, *et al.* (2019) reported that psychological need frustration negatively predicted EI. These results suggest that the

motivational climate created by the teacher, mediated by BPN satisfaction, could contribute to the development of students' EI.

In the final part of the model, the third hypothesis was partially confirmed. Results showed that SDI positively predicted two of the three outcomes (intention and self-esteem). These findings align with SDT, and the results reported by Vasconcellos *et al.* (2020) in a recent meta-analysis, which showed that autonomous motivation is associated with multiple positive outcomes in PE students. Moreover, previous studies have demonstrated that more self-determined types of motivation predict intention to be physically active (e.g., Fernández-Espínola, Almagro, Tamayo-Fajardo, *et al.*, 2020; Taylor *et al.*, 2010; Trigueros, Aguilar-Parra, *et al.*, 2019) and self-esteem (e.g., Hein & Hagger, 2007; Koka, 2014). Regarding life satisfaction, SDI did not predict it as hypothesized. This may be because life satisfaction is directly associated with BPN satisfaction without mediation by other variables. Supporting this, previous research (González-Cutre *et al.*, 2020) found that BPN, including novelty, positively predicted life satisfaction. Other evidence suggests that the relationship between motivation and life satisfaction may be mediated by other factors such as physical self-concept (Martín-Albo *et al.*, 2012) or self-esteem (Moreno-Murcia & Vera, 2011). Indeed, in the present study, SDI predicted self-esteem, which in turn had direct and significant effects on life satisfaction. This indicates that students with higher autonomous motivation will have greater self-esteem and, consequently, higher life satisfaction.

Regarding EI, it acted as a positive predictor of all three proposed outcomes.

These results align with other studies reporting a positive association between EI and indicators of psychological well-being (Fernández-Ozcorta et al., 2014; Fierro-Suero et al., 2019; Sánchez-Álvarez et al., 2015, 2016). They are also consistent with Méndez-Giménez et al. (2020), who analyzed EI profiles in PE students and their relationship with motivation, subjective well-being, and future intention to be physically active. The results showed that students with high EI profiles were more self-determined, had higher life satisfaction, and a greater intention to be physically active compared to students with low EI profiles. These findings indicate that developing EI positively influences the SDT motivational sequence. Focusing on EI development during PE classes could enhance the positive effects that autonomous motivation already has on various motivational outcomes. In this regard, Méndez-Giménez et al. (2017) found that combining sport education models with content related to body expression positively affected both EI and student well-being. Therefore, innovative educational models emphasizing body expression could be an effective strategy to foster students' EI.

Finally, the main limitations of this study and future research directions should be considered. First, this was a cross-sectional study, which prevents causal inferences. Future research could adopt quasi-experimental designs to analyze, on the one hand, the effects of BPN satisfaction on EI, and, on the other, the effects of EI on motivation and motivational outcomes. Second, this study only examined the “bright side” of motivation. Future studies

should investigate the potential role of BPN frustration and negative outcomes, such as stress or anxiety, within this sequence, including EI. Third, the sample was drawn from public schools in a single Spanish province, which limits the generalizability of the findings to other regions or educational contexts. Replication with more diverse samples is therefore recommended. Finally, although the final structural equation model showed acceptable fit, some paths were added based on modification indices. These data-driven adjustments should be interpreted as exploratory rather than confirmatory, and future studies using independent samples are needed to test the stability of the proposed model.

5. Practical Applications

Promoting a task-involving climate in PE classes is essential to satisfy students' BPN, fostering autonomous motivation and positive outcomes such as psychological well-being and the intention to be physically active. PE teachers should emphasize personal effort, skill development, and cooperation rather than social comparison or competition.

Integrating emotional intelligence (EI) development into PE curricula can further enhance these benefits. Activities that cultivate self-awareness, interpersonal skills, stress management, and adaptability can strengthen students' motivation, self-esteem, and engagement in physical activity.

Therefore, curriculum design should adopt a holistic approach, combining skill-based exercises with tasks promoting cooperation, self-expression, and reflection

on emotions. This dual focus supports both BPN satisfaction and EI, maximizing the impact of PE on students' well-being.

6. Conclusions

In conclusion, within the sequence proposed by SDT, EI may be positively associated with the satisfaction of BPN and with motivational outcomes such as psychological well-being and the intention to be physically active, exerting effects similar to those of students' motivation.

Moreover, the results of the hypothesized model further highlight the importance of fostering a task-involving climate that satisfies BPN in PE classes, as this predicts self-determined motivation, EI, and positive outcomes such as psychological well-being and intention to engage in physical activity.

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