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Research Article

Motivational Climate Effect on the Development of Anxiety and Body Image in Education Students: A Structural Equation Model

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Motivation is one of the key factors affecting the achievement of a specific task. Therefore, the present research aims to identify and establish the existing relationships between sport motivation, the anxiety-related disorder, and the own body perception, divided into (a) developing an explanatory model of the motivational climate towards sport and its relationship with anxiety and physical self-concept and (b) contrasting the structural model through a multigroup analysis according to sex. A descriptive, non-experimental (ex post facto), and cross-sectional study of young university students was carried out. The Perceived Motivational Climate Questionnaire for Sport (PMCSQ-2), the Beck Anxiety Inventory (BAI), and the Self-Concept Form 5 (AF-5) were used for data collection. The data reveal that males show higher scores in all the variables that make up the ego climate and in the physical self-concept, while females show higher scores in the variables that make up the task climate and higher levels of anxiety.

1. Introduction

One of the issues of greatest concern to teachers involved in the teaching of physical education is the gradual desertion of adolescent sports practice [1, 2], in particular among females [3]. Considering this problem, the most relevant and influential psychological factors to explain human behaviour is motivation [3]. This concept can be defined as the result of the interaction between different factors (cognitive, biological, emotional, and social) that determine people's choice, endurance, intensity, and performance when attempting a determined task [4].

Two theories mainly define the study of motivation in the field of sport. The first one is the theory of achievement goals [5], stating that people set themselves different objectives when carrying out a sporting activity [6]. These aims depend on the individual's perception of their own abilities, meaning goals can be oriented towards task-directed or ego-directed motivational climates [7]. Likewise, the second theory, known as the self-determination theory [8], states, for example, that when sports practice is oriented towards task climate, intrinsic values acquire greater importance, whereas if sports practice is oriented towards ego climate, extrinsic motivations acquire greater importance [7, 9].

Anxiety is another of the most frequently examined factors in sports psychology [10]. This term is defined as a disruptive state in which negative feelings and states of concern or nervousness predominate, affecting people's performance [11]. This is due to the psychosomatic nature of anxiety, as psychological symptoms can lead to physical symptoms [12]. Within the test anxiety theory [13], it is stated that before a situation in which a subject is going to be evaluated, an increase in this state takes place, negatively affecting performance towards the task. The selection of a specific motivational climate in which to orient sport

practice can play a key role in the development or channelling of this disruptive state [6].

One of the factors that may influence the development of anxiety is social pressure derived from socio-cultural influences [14], which affects self-concept. It is defined as a mental representation of oneself when interacting with the environment [15]. Self-concept is conceived as a multidimensional construct composed of five areas: academic, emotional, family, social, and physical [16]. Focusing on this last area, physical self-concept is defined as a complex, mental, and multidimensional representation that different people possess of their bodily reality [17]. To understand self-concept, there are different authors who claim that this variable is composed of different subvariables. The physical self-concept is made up of nine subdomains (strength, physical activity, body fat, coordination, endurance, sport competence, health, physical appearance, and flexibility) [18]. However, another perspective conceives the physical self-concept as a multidimensional and hierarchical structure made up of four specific subdomains (sport competence, physical condition, physical attractiveness, and strength) [19].

According to the previous paragraph, the present study reflects the following research questions: does the motivational climate influence the development of anxiety and physical self-concept? Does anxiety have a negative impact on the development of physical self-concept? Are there differences in the development of physical self-concept according to gender? Based on the previous questions, the following research hypotheses have been proposed:

(i) Task climate orientation will help reduce anxiety-related symptoms

(ii) Orientation towards the task climate will positively influence the development of the physical self-concept

(iii) The ego-climate orientation of sport will increase anxiety symptoms

(iv) The ego-climate orientation will negatively affect the development of the physical self-concept

(v) Anxiety will negatively affect the development of the physical self-concept

(vi) Gender will play a key role in the development of the physical self-concept and in the channelling of anxiety

The aims of the present study are to identify and establish the relationships between the motivational climate towards sport, the symptomatology caused by anxiety, and the development of the physical self-concept, broken down into (a) developing an explanatory model of sport motivation and its relationship with anxiety and the physical self-concept and (b) contrasting the structural model by means of a multigroup analysis according to sex.

2. Materials and Methods

2.1. Participants and Design. A descriptive, comparative, nonexperimental (ex post facto), and cross-sectional study was carried out on undergraduates. A total of 556 students were included in the study sample. For this research, 417 (75%) were females and 139 (25%) were males. The ages of the participants ranged from 18 to 25 years (21.05 ± 6.23). The participation of the students was carried out on a voluntary basis, informing them of the aims and nature of the study and obtaining their informed consent. In terms of sampling error, the sampling error was set at 5.0%, giving a sample size for a confidence level of 97%.

2.2. Instruments and Variables

2.2.1. Sociodemographic Questionnaire ad hoc. Sociodemographic questionnaire ad hoc was intended for the collection of sociodemographic variables such as sex and age.

2.2.2. Perceived Motivational Climate Questionnaire for Sport (PMCSQ-2). In this case [20], the version adapted to Spanish [21] was used. This instrument is composed of a total of 33 items that are evaluated through a Likert scale (1 = completely disagree and 5 = completely agree). Motivation is evaluated in two dimensions: task climate (effort-improvement, cooperative effort, and important role) and ego climate (unequal recognition, punishment for mistakes, and rivalry between group members). For task climate, Cronbach's alpha showed a score of $\alpha = 0.925$, while ego climate obtained a value of $\alpha = 0.912$.

2.2.3. Beck Anxiety Inventory. The version [22] used has been adapted into Spanish [23]. The instrument consists of a total of 21 items, which are measured on a Likert scale. Through these items, the following anxiety symptoms are evaluated: subjective (items 4, 5, 8, 9, 10, 14, and 16), neurophysiological (items 1, 3, 6, 12, 13, 17, 18, and 19), autonomic (items 7, 11, and 15), and vasomotor symptoms (items 2, 20, and 21). According to the degree of reliability for the subjective factor $\alpha = 0.907$, for the physiological domain $\alpha = 0.897$, for autonomic $\alpha = 0.845$, and for vasomotor symptoms $\alpha = 0.894$.

2.2.4. Self-Concept Form 5. This instrument assesses self-concept as a multidimensional construct made up of five variables using a Likert scale (1 = never and 5 = always) [24]. The dimensions it assesses are the following: academic self-concept (A-SC: items 1, 6, 11, 16, 21, and 26), social self-concept (S-SC: items 2, 7, 12, 17, 22, and 27), emotional self-concept (E-SC: items 3, 8, 13, 18, 23, and 28), and physical self-concept (P-SC: items 5, 10, 15, 20, 25, and 30). In this case, Cronbach's alpha obtained a score of $\alpha = 0.855$ for physical self-concept.

2.3. Procedure. Firstly, a bibliographical review was carried out in order to study and understand the problems addressed in this study. Subsequently, from the Department of Didactics of Musical, Plastic, and Bodily Expression of the University of Granada (Spain), a Google form was created with the instruments described previously, establishing the objectives of the study and the acceptance to participate in it through informed consent. Different methods were used to fill in the questionnaire, but the main method used was the virtual one. The method by which the research was most widely publicised was through the department's social networks. In addition, the inclusion criteria were defined in such a way that only students from the Faculty of Education Sciences and related degrees could participate. In this case, not being related to the field of education was an exclusion criterion. In this case, all students who met the inclusion criteria were invited to participate, ensuring that the data would be processed for scientific purposes and guaranteeing the anonymity of each participant. Likewise, in order to check that the answers were not answered randomly, two questionnaires were duplicated, eliminating a total of 26 questionnaires as they were not completed in an appropriate manner. Finally, the principles established in the Declaration of Helsinki were followed at all times, and the present research was approved by an ethics committee of the University of Granada (1230/CEIH/2020).

2.4. Data Analysis. IBM SPSS Statics version 25.0 (IBM Corp. Armonk, NY, USA) was used for data analysis. Frequencies were used for the descriptive analysis, while the *T* Student test for independent samples was used for the comparative analysis. Statistically significant differences were found using Pearson's chi-squared test, establishing the reliability index at 95%. The magnitude of the difference in effect size (ES) was obtained with Cohen's standardised d-index [25], interpreted as null (0.0–0.19), small (0.20–0.49), medium (0.50–0.79), and large (≥0.80). The Kolmogorov–Smirnov test was used to study the normality of the sample, reflecting a normal distribution.

IBM SPSS Amos 26.0 programme (IBM Corp. Armonk, NY, USA) was used to develop the structural equation models, which allows to establish relationships between the variables that make up the theoretical model (Figure 1). Four theoretical models have been developed. Two of them belong to the male gender, and the other two belong to the female gender. Each of the models is composed of a total of nine variables. Eight of them are endogenous, and the other one is exogenous. For the latter variables, causal explanations were carried out taking into account the observed associations between the indicators and the reliability of the degree of measurement, so it was decided to include in each of the models the measurement error of the observable variables, interpreted as multivariate regression coefficients. The one-way arrows represent the lines of influence between the latent variables and have been interpreted from the regression coefficients. In addition, a significance level of 0.05 was established using Pearson's chi-square test. In this case, the motivational climate acts as an exogenous variable, which affects each of the symptoms of anxiety (endogenous variables), also acting on the physical self-concept (endogenous variable).

In this case, the goodness of fit should be assessed on the basis of chi-square, where nonsignificant p values indicate a good fit of the model. For the comparative fit index (CFI), goodness-of-fit index (GFI), and the incremental fixation index (CFI) values above 0.90 indicate a good model fit. Finally, the root mean square approximation values below 0.1 indicate a good model fit [26–29].

3. Results

The results obtained in the comparative analysis (Table 1) show that for the variables that make up the task climate (CL, EI, and IR), the female sex shows higher scores ($M = 4.04$; $M = 3.97$; $M = 4.08$) than the male sex ($M = 3.96$; $M = 3.89$; $M = 3.95$). On the contrary, for the variables that form the ego climate (PM, UR, and MR), the male sex shows higher scores ($M = 2.45$; $M = 3.32$; $M = 2.87$) than the female sex ($M = 2.35$; $M = 3.06$; $M = 2.67$). Moving on with the physical self-concept, it is observed that the male sex ($M = 3.41$) shows a higher score than the female sex ($M = 3.02$). Finally, for the symptomatology developed by anxiety (SBT, VMS, NPS, and ATC), it is observed that the female sex ($M = 0.97$; $M = 0.76$; $M = 0.87$; $M = 0.62$) shows higher scores than the male sex ($M = 0.77$; $M = 0.63$; $M = 0.57$; $M = 0.59$).

Following the model developed for the male task climate, it showed acceptable values. In this case, the chi-square test showed a nonsignificant p value ($X^2 = 266.807$; d$f = 16$; pl = 0.000); however, the data cannot be interpreted in an independent way due to the size, influence, and susceptibility of the sample [30]. As a result, other standardised indices less sensitive to sample size have been used. In this case, the CFI obtained a value of 0.909, the NFI showed a score of 0.900, the RFI obtained a value of 0.905, the IFI reflected a score of 0.913, and the TLI evidenced a value of 0.925. Lastly, RMSEA showed a value of 0.087.

Figure 2 and Table 2 show the regression weights of the theoretical model with statistically significant differences at $p \leq 0.05$ and $p \leq 0.001$. Focusing attention on the task climate, negative relationships are observed with the subjective ($r = -0.916$; $p \leq 0.001$), neuropsychological ($r = -0.963$; $p \leq 0.001$), autonomic ($r = -0.904$; $p \leq 0.001$), and vasomotor ($r = -0.765$; $p \leq 0.001$); however, negative relationships are shown with cooperative learning ($r = 0.468$), effort/improvement ($r = 0.468$; $p \leq 0.001$), important role ($r = -0.347$; $p \leq 0.05$), and physical self-concept ($r = 0.711$; $p \leq 0.05$). Physical self-concept shows negative relationships with the subjective ($r = -0.151$), autonomic ($r = -0.185$), and vasomotor ($r = -0.084$) factors; however, a positive relationship is obtained with the neuropsychological factor ($r = 0.001$; $p \leq 0.05$).

The model developed for the ego climate of males showed a good fit. The chi-square test showed a nonsignificant p value ($X^2 = 146.356$; d$f = 16$; pl = 0.000). The CFI obtained a value of 0.918, the NFI showed a score of 0.903,

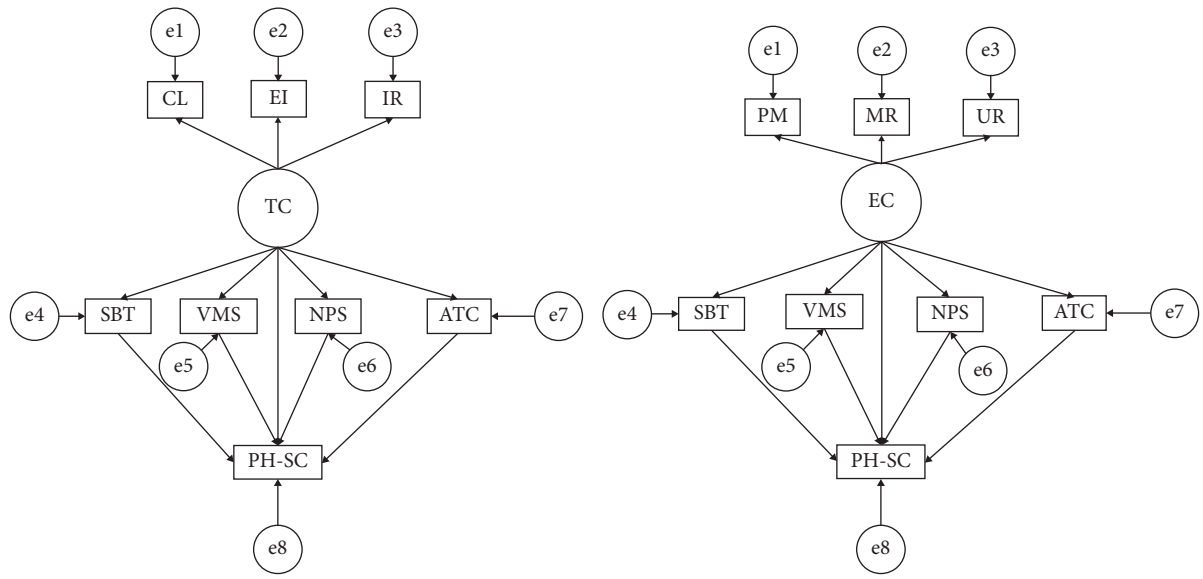

Figure 1: Theoretical model proposed in terms of motivational climate. *Note*. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC).

Table 1: Comparative analysis of variables according to sex.

		M	SD	*F*	*T*	Sig	95% CI	ES (*d*)
CL	Female	4.04	0.90	2.309	1.051	0.330	[0284; 0.658]	0.092
	Male	3.96	0.77					
EI	Female	3.97	0.71	0.187	1.097	0.278	[0.079; 0.305]	0.113
	Male	3.89	0.70					
IR	Female	4.08	0.86	0.240	1.690	0.108	[0.038; 0.347]	0.155
	Male	3.95	0.78					
PM	Female	2.35	0.82	8.239	1.322	0.226	[−0.065; 0.319]	0.127
	Male	2.45	0.69					
UR	Female	3.06	0.24	20.019	2.402	≤0.05	[0.714; 0.987]	0.254
	Male	3.32	0.21					
MR	Female	2.67	0.92	4.253	2.280	≤0.05	[0.031; 0.416]	0.223
	Male	2.87	0.82					
PH-SC	Female	3.02	0.78	8.019	2.413	≤0.05	[0.283; 0.671]	0.477
	Male	3.41	0.92					
SBT	Female	0.97	0.74	0.685	4.422	≤0.05	[−0.458; −0.073]	0.266
	Male	0.77	0.79					
VMS	Female	0.76	0.59	1.613	2.705	≤0.05	[−0.404; 0.019]	0.212
	Male	0.63	0.68					
NPS	Female	0.87	0.84	2.616	3.629	≤0.05	[0.169; 0.556]	0.362
	Male	0.57	0.79					
ATC	Female	0.62	0.64	0.997	3.733	0.625	[0.145; 0.238]	0.047
	Male	0.59	0.66					

Note. Cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC).

the RFI obtained a value of 0.956, the IFI reflected a score of 0.921, and finally, the TLI evidenced a value of 0.981, while the RMSEA showed a value of 0.043.

Figure 3 and Table 3 show the regression weights of the theoretical model with statistically significant differences at $p \leq 0.05$ and $p \leq 0.001$. Regarding ego climate, it is positively related to the subjective ($r = 0.918$; $p \leq 0.001$), autonomic ($r = 0.901$; $p \leq 0.001$), neuropsychological ($r = 0.964$; $p \leq 0.001$), and vasomotor ($r = 0.769$; $p \leq 0.001$) factors. Likewise, relationships were also shown with punishment for errors ($r = 0.411$), unequal recognition ($r = 0.345$; $p \leq 0.05$), rivalry between group members ($r = 0.198$; $p \leq 0.05$), and physical self-concept ($r = 0.404$). In terms of physical self-concept, negative relationships

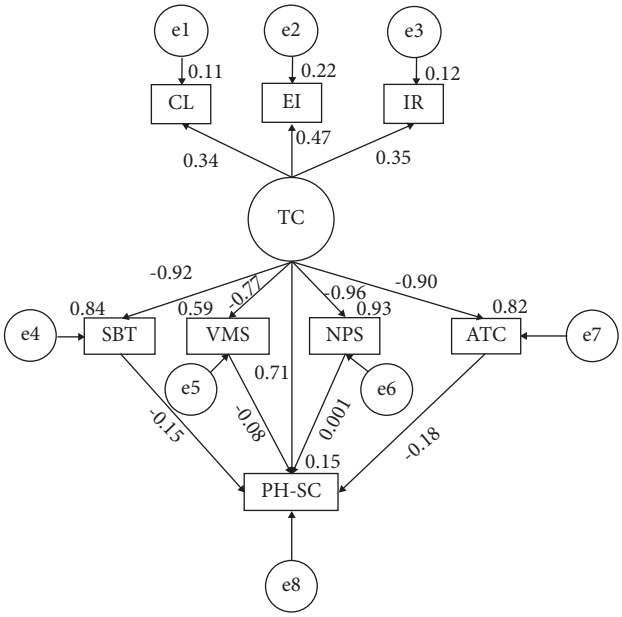

Figure 2: The male task climate structural model. *Note*. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC).

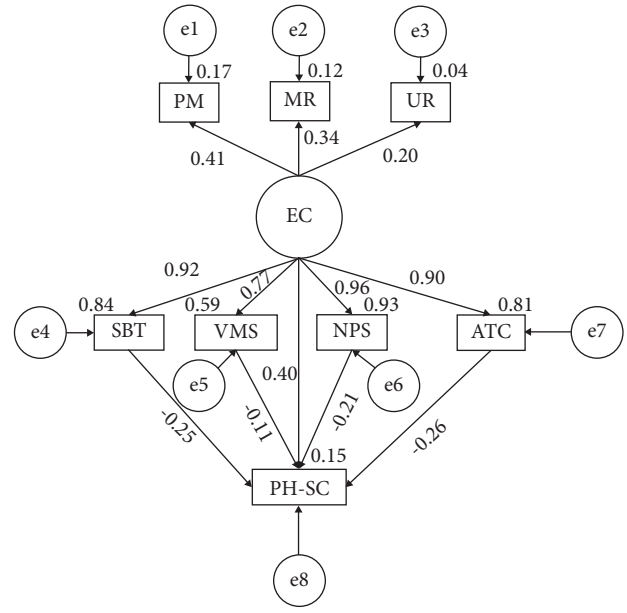

Figure 3: The male ego-climate structural model. *Note*. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC).

Table 2: The male task climate structural model.

Association between the variables	R.W				S.R.W
	Estimates	S.E	C.R	p	Estimates
SBT←TC	−2.766	0.666	−4.153	***	−0.916
NPS←TC	−2.495	0.597	−4.181	***	−0.963
ATC←TC	−2.829	0.683	4.145	***	−0.904
VMS←TC	−1.947	0.484	4.021	***	−0.765
CL←TC	1.000				0.338
EI←TC	1.256	0.359	3.499	***	0.468
IR←TC	1.032	0.340	3.031	**	0.347
PH-SC←SBT	1.052	0.770	1.366	0.172	−0.150
PH-SC←NPS	3.363	2.214	1.519	**	0.001
PH-SC←ATC	0.869	0.653	1.332	0.183	−0.184
PH-SC←VMS	0.365	0.327	1.116	0.265	−0.082
PH-SC←TC	16.434	10.905	1.507	**	0.711

Note 1. Regression weights (R.W); standardised regression weights (S.R.W); critical ratio (C.R). *Note* 2. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC). *Note* 3: $^{**}p \leq 0.05$ $^{***}p \leq 0.001$.

Table 3: The male ego-climate structural model.

Association between the variables	R.W				S.R.W
	Estimates	S.E	C.R	Estimates	S.E
SBT←EC	2.550	0.501	5.086	***	0.918
ATC←EC	2.593	0.512	5.065	***	0.901
NPS←EC	2.297	0.447	5.137	***	0.964
VMS←EC	1.801	0.371	4.855	***	0.769
PM←EC	1.000				0.411
UR←EC	1.226	0.374	3.277	**	0.345
MR←EC	0.575	0.271	2.122	**	0.198
PH-SC←EC	1.315	10.653	0.123	0.902	0.404
PH-SC←SBT	−0.291	0.899	−0.323	0.746	−0.248
PH-SC←ATC	−0.289	0.721	−0.401	0.689	−0.256
PH-SC←NPS	−0.292	2.448	−0.119	0.905	−0.214
PH-SC←VMS	−0.159	0.376	−0.424	0.672	−0.115

Note 1. Regression weights (R.W); standardised regression weights (S.R.W); critical ratio (C.R). *Note* 2. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC). *Note* 3. $^{**}p \leq 0.05$ $^{***}p \leq 0.001$.

were found with the subjective ($r = -0.248$), autonomic ($r = -0.256$), neuropsychological ($r = -0.214$), and vasomotor factors ($r = -0.115$).

Following with females, the model developed for the task climate showed a good fit in each of the different indices of which it is composed. The chi-square test showed a non-significant p value ($X^2 = 152.214$; d$f = 16$; pl $= 0.000$). For this model the CFI, NFI, RFI, IFI, and TLI obtained a value of 0.906, 0.893, 0.921, 0.919, and 0.921, respectively. The RMSEA showed a value of 0.069.

Figure 4 and Table 4 show the regression weights of the theoretical model. In this case, task climate shows negative relationships with the subjective ($r = -0.257$; $p \leq 0.001$), neuropsychological ($r = -0.242$; $p \leq 0.001$), autonomic ($r = -0.282$; $p \leq 0.001$), and vasomotor ($r = -0.172$; $p \leq 0.001$) factors. Positive relationships are also obtained with cooperative learning ($r = 0.868$), effort/improvement ($r = 0.849$; $p \leq 0.001$), important role ($r = 0.888$; $p \leq 0.001$), and physical self-concept ($r = 0.176$; $p \leq 0.001$). The physical self-concept

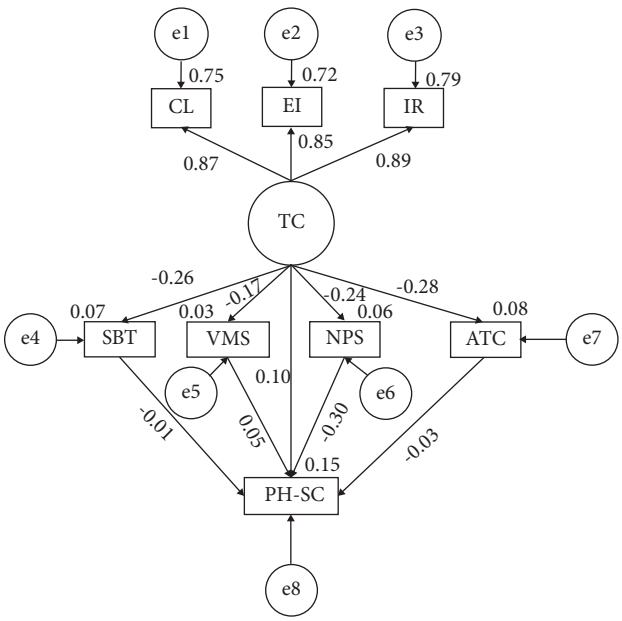

Figure 4: The female task climate structural model. *Note*. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC).

Table 4: The female task climate structural model.

Association between the variables	R.W			S.R.W	
	Estimates	S.E	C.R	Estimates	S.E
SBT←TC	−0.259	0.044	−5.878	***	−0.257
NPS←TC	−0.198	0.036	−5.516	***	−0.242
ATC←TC	−0.313	0.048	−6.491	***	−0.282
VMS←TC	−0.148	0.038	−3.882	***	−0.172
CL←TC	1.000				0.868
EI←TC	0.804	0.032	24.921	***	0.849
IR←TC	0.991	0.038	26.291	***	0.888
PH-SC←TC	0.189	0.050	3.755	***	0.176
PH-SC←SBT	−0.007	0.043	−0.153	0.879	−0.006
PH-SC←NPS	−0.398	0.053	−7.494	***	−0.303
PH-SC←ATC	−0.029	0.040	−0.725	0.468	−0.030
PH-SC←VMS	0.059	0.050	1.194	0.232	0.048

Note 1. Regression weights (R.W); standardised regression weights (S.R.W); critical ratio (C.R). *Note* 2. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC). *Note* 3. $^{***}p \leq 0.001$.

shows a negative relationship with the subjective ($r = -0.006$), neuropsychological ($r = -0.303$; $p \leq 0.001$), and autonomic ($r = -0.030$) factors. In addition, physical self-concept shows a positive relationship with the vasomotor factor ($r = 0.048$).

Finally, the model developed for ego climate showed a good fit in each of the different indices that compose it. In this case, the chi-square test showed a nonsignificant p value ($X^2 = 130.221$; d$f = 16$; pl $= 0.000$). The CFI, NFI, RFI, IFI, and TLI obtained a value of 0.923, 0.920, 00.909, 0.924, and 0.915, respectively. The RMSEA showed a value of 0.082.

Figure 5 and Table 5 show the regression weights of the theoretical model. It is observed that ego climate shows a positive relationship with the subjective ($r = 0.913$; $p \leq 0.001$), neuropsychological ($r = 0.924$; $p \leq 0.001$), autonomic ($r = 0.912$; $p \leq 0.001$), and vasomotor ($r = 0.613$; $p \leq 0.001$) factors. Moving on with ego climate, positive relationships were also shown with unequal recognition ($r = 0.205$), rivalry between group members ($r = 0.082$), punishment for errors ($r = 0.252$; $p \leq 0.001$), and physical self-concept ($r = 0.210$). Continuing with self-concept, a negative relationship is shown with the subjective ($r = -0.086$), neuropsychological ($r = -0.372$), and autonomic ($r = -0.136$) factors; however, a positive relationship is shown with the vasomotor factor ($r = 0.028$).

4. Discussion

The current research provides evidence about the relationships between the motivational climate developed towards the physical-sports environment, anxiety, and physical self-concept in young people. The results obtained a response from the objectives and hypotheses initially established, and therefore, the aim of the present discussion is to compare the data obtained with those of another research already carried out.

The comparative analysis showed that female people obtained higher scores than males in all the variables that make up the task climate. On the other hand, higher values were observed in the variables that make up the ego climate for males, coinciding with another research already carried out [31]. These differences according to gender have been explained by different authors, who consider social factors that influence the forms of sports socialisation [32]. Likewise, females tend to conceive sport as an activity of a cooperative nature, oriented towards leisure and enjoyment, while for males, the competitive factor of sport predominates [33].

It is observed that males show higher scores for physical self-concept. Based on these results, it is established that women abandon physical sports practice early, which has a negative impact on their body image [34, 35]. Likewise, young adolescents who have practised sports at an early age develop a more favourable physical capacity and feelings about their own body image [36].

Continuing with the symptomatology derived from anxiety, it is observed that females show higher scores for each of the symptoms. These results may be due to neuroendocrine responses to a traumatic or stressful situation [36]. Also, in recent years it has been found that the amygdala and the hippocampus are highly involved in emotional control in the face of a stressful response [37, 38], concluding that the amygdala is greater in men and the hippocampus greater in women. When assessing amygdala activity in stressful responses, men were found to have greater activity on the right side, while women showed greater activity in the left amygdala [39], suggesting that this difference plays a key role in the experience of these situations [40].

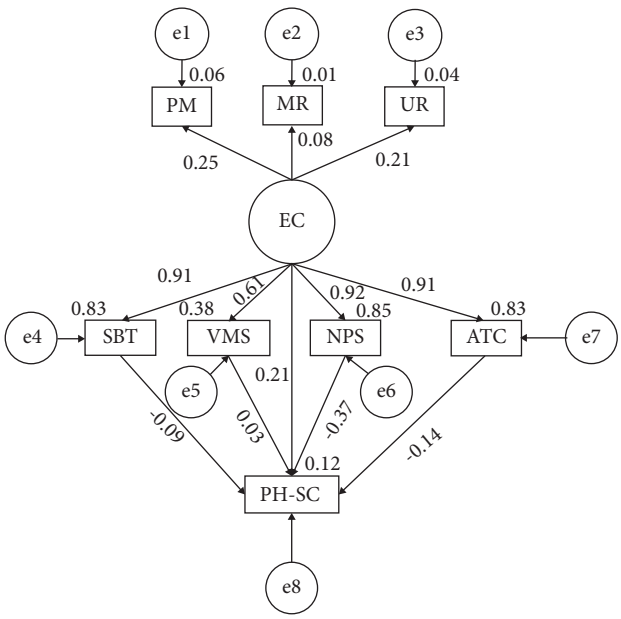

Figure 5: The female ego-climate structural model. *Note*. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC).

Table 5: The female ego-climate structural model.

Association between the variables	R.W			S.R.W	
	Estimates	S.E	C.R	Estimates	S.E
SBT←EC	2.829	0.593	4.772	***	0.913
NPS←EC	2.332	0.488	4.775	***	0.924
ATC←EC	3.111	0.652	4.772	***	0.912
VMS←EC	1.623	0.351	4.628	***	0.613
UR←EC	1.000				0.205
MR←EC	0.303	0.173	1.750	0.080	0.082
PM←EC	0.818	0.219	3.734	***	0.252
PH-SC←EC	0.697	6.600	0.105	0.917	0.210
PH-SC←SBT	−0.092	0.685	−0.134	0.893	−0.086
PH-SC←NPS	−0.488	0.960	−0.508	0.612	−0.372
PH-SC←ATC	−0.132	0.614	−0.215	0.830	−0.136
PH-SC←VMS	0.035	0.155	0.227	0.820	0.028

Note 1. Regression weights (R.W); standardised regression weights (S.R.W); critical ratio (C.R). *Note* 2. Task climate (TC); ego climate (EC); cooperative learning (CL); effort/improvement (EI); important role (IR); subjective factor (SBT); vasomotor factor (VMS); neurophysiological factor (NPS); autonomic factor (ATC); physical self-concept (PH-SC). *Note* 3. $^{***}p \leq 0.001$.

Looking at models developed for the task climate, negative relationships between symptoms caused by anxiety and the task climate were observed for both males and females [6]. Given these results, the practice of physical activity based on intrinsic values reduces levels of depression, anxiety, and stress, improving people's performance in any other area [41]. In addition, the secretion of neurotransmitters during physical activity such as serotonin and dopamine helps reduce the levels of these disruptive states [42]. In contrast, for ego climate, a positive relationship between anxiety symptoms and motivational climate has been observed. It has also been found that when sport practice is oriented towards extrinsic motivations, the level of anxiety increases if the proposed objectives are not achieved [43].

Finally, it has also been observed that the symptoms developed by anxiety have a negative impact on the development of self-concept, with the exception of vasomotor symptoms for females and neuropsychological symptoms for males. Research indicates that disruptive symptoms lead to a negative perception of young people's mental and body self-image [44]. Likewise, both motivational climates positively affect the development of physical self-concept, improving people's physical self-perception [9].

5. Additional Points and Future Perspectives

Several limitations exist in the present research. The first of these is related to the nature of the study since as it is a cross-sectional study, it is only possible to establish the relationships between the variables at that point in time. Likewise, the sample, despite having achieved a high degree of significance, does not allow generalisations to be established for a wider area of the national geography. In addition, COVID-19 has limited the sample as there were mobility constraints imposed during data collection.

Regarding future perspectives, an intervention programme is being designed. This is based on how the motivation developed towards the practice of physical activity influences the development of anxiety.

6. Conclusions

As a general result, acceptable values were obtained for the different parameters of each of the proposed models. The present research shows the relationship between the motivational climate towards sport, the anxiety symptomatology, and the physical self-concept according to participants' sex.

The comparative analysis shows that males show higher scores in all the variables that make up the ego climate and in the physical self-concept. On the contrary, the females show a better appreciation in the variables that make up the task climate and higher scores in all the manifestations of anxiety.

The models developed for the task climate show a negative relationship between the motivational climate and the manifestations of anxiety, with a higher level of association for males. In addition, a positive relationship between the aforementioned motivational climate and physical self-concept is also evident, this relationship being stronger for females.

For the models developed for the ego climate, a positive relationship is observed between the motivational climate, with a stronger association for females. In addition, a negative relationship is observed between the development of physical self-concept and anxiety. Finally, a positive relationship is observed between ego climate and physical self-concept.

Data Availability

The data used to support the findings of the current study are available from the corresponding author upon request.

Additional Points

The study was conducted in accordance with the Declaration of Helsinki and was approved by an Ethics Committee of the University of Granada (1230/CEIH/2020).

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

E.M.I. and G.G-V. were responsible for conceptualization; P.P-M. was involved in methodology; E.M.I. was responsible for software, data curation, project administration, and formal analysis; G.B., G.G-V., and P.P-M. were responsible for validation;; G.G-V. was involved in investigation; G.B and E.S. were responsible for resources; G.G-V was involved in writing—original draft preparation; G.B., E.S., G.G-V were involved in writing—review and editing; G.B. and G.G-V were responsible for visualization; P.P-M. was involved in supervision;. All authors read and agreed to the published version of the manuscript.

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