Incidence of mindfulness practices, sporting trajectory and gender on mood states of future trainers

Incidencia de las prácticas de atención plena, la trayectoria deportiva y el género en los estados de ánimo de futuros entrenadores

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Short title:
Mindfulness, sport, gender and mood states

How to cite this article:
Muñoz-Arroyave, V., Lavega-Burgués, P., Serna, J., & March-Llanes, J. (2023). Incidence of mindfulness practices, sporting trajectory and gender on mood states of future trainers. *Cultura, Ciencia y Deporte, 18*(57), 57-76. https://doi.org/10.12800/ccd.v18i57.1905

Received: 30 March 2023 / ***Accepted:*** 24 April 2023

Abstract

The aim of this research was to study the effect of mindfulness techniques (MT) on mood states (MS) in men and women who may become sports coaches in the future, taking into account the characteristics of their sport of origin, sports background and gender. The study design was quasi-experimental, involving 300 first-year students of Physical Activity and Sport Sciences at the University of Girona, Spain. An initial training on MSwas carried out, participants completed 2 TAP sessions and filled in the POMS questionnaire at the beginning and end of each session. Data were analyzed using generalized estimating equations. The most relevant results were: a) athletes coming from psychomotor sports showed an optimal iceberg profile in their MS for performance; b) in general, participants with more advanced sporting backgrounds experienced a more satisfactory affective experience than those with less advanced backgrounds; c) men coming from oppositional and psychomotor sports expressed a more positive affective experience than women. From these results, it could be concluded that high competition environments need coaches competent not only in their sport-specific subjects, but also in the development of affective competences in order to: a) understand the effect of the motor tasks performed in training on MS; b) select training tasks appropriately so that their athletes can perform at their best in competitive situations of maximum affective experience.

Key words: Affectivity, sports background, motor action domains, mindfulness techniques, motor praxeology, physical education.

Resumen

El objetivo de esta investigación fue estudiar el efecto de las técnicas de atención plena (TAP) sobre los estados de ánimo (EA) en hombres y mujeres, que en un futuro podrán ser entrenadores deportivos, teniendo en cuenta las características de su deporte de procedencia, la trayectoria deportiva y el género. El diseño del estudio fue cuasi-experimental, participaron 300 estudiantes de primer año de Ciencias de la Actividad Física y el Deporte de la Universidad de Girona, España. Se llevó a cabo una formación inicial sobre EA, los participantes realizaron 2 sesiones de TAP y rellenaron el cuestionario POMS al inicio y final de cada sesión. Los datos se analizaron mediante ecuaciones de estimación generalizadas. Los resultados más relevantes fueron: a) Los deportistas provenientes de deportes psicomotores mostraron un perfil iceberg óptimo en sus EA para el rendimiento; b) En general, los participantes con mayor trayectoria deportiva más avanzada experimentaron una vivencia afectiva más satisfactoria que aquellos que tenían menor trayectoria; c) los hombres procedentes de deportes con oposición y psicomotores expresaron una vivencia afectiva más positiva que las mujeres. A partir de estos resultados, se pudo concluir que los entornos de alta competición necesitan entrenadores competentes no sólo en las materias específicas de su deporte, sino también en el desarrollo de competencias afectivas para: a) conocer el efecto de las tareas motrices realizadas en el entrenamiento sobre los EA; b) seleccionar adecuadamente las tareas de entrenamiento para que sus deportistas puedan desplegar su mejor rendimiento en situaciones competitivas de máxima vivacidad afectiva.

Palabras clave: Afectividad, trayectoria deportiva, dominios de acción motriz, mindfulness, praxiología motriz, educación física.

Introduction

High competition sport is one of the career opportunities for graduates in Physical Activity and Sports Sciences. Comprehensive training of future professionals in this field will be key to the success of the athletes working under their guidance (Coˆte, 2006; Gilbert et al., 2006).

It is therefore necessary to carry on conducting research that will ultimately help to improve the training of future trainers. From this perspective, a competent trainer should be broadly trained in the knowledge of the characteristics of his or her sport (internal logic). It should also be aware of the effects that sport has, for example, on the athletes' mood states, taking into account personal traits such as their sport background and gender (Parlebas, 2001).

The internal logic in the sports

Technical training centers should encourage trainers to attain in-depth knowledge of their respective sports and to identify the distinctive features of their internal logic. Such logic requires players to establish a set of unique relationships with other participants (motor interaction), with space, with time and with equipment (Parlebas, 2001). Regarding the motor interaction criterion, four major families or motor action domains can be distinguished: a) psychomotor sports, in which there is no motor interaction with teammates or opponents; b) cooperation sports, in which two or more players can help each other to achieve a common goal; c) opposition sports, in which participants are pitted against one or more opponents; and d) cooperation-opposition sports, in which two teams are pitted against each other (Parlebas, 2001).

These four groups of sports can be done in a stable space where there are no unexpected events or informational uncertainty (e.g., athletics, synchronized swimming, judo or basketball), or in uncertain or unstable spaces where improvisation prevails when faced with changing conditions (e.g., climbing, mountain races, team canoeing or kayaking); thus, eight families of sports disciplines or motor action domains emerge (Parlebas, 2001).

This classification makes it possible to identify common processes that are triggered in athletes when taking part in sports that have a similar internal logic, thereby generating generic competencies across sports (Lagardera & Lavega, 2004). Psychomotor sports disciplines activate processes linked with body awareness, body control, energy expenditure optimization and gesture automation; in addition body control and gesture automation, cooperation sports require communication with teammates and decision-making; opposition sports give rise to the reading, anticipation and interpretation of opponents' actions, decision-making and the exaltation of the 'match' concept; and finally, in addition to the same processes as those in the opposition domain, cooperation-opposition sports trigger communication with teammates and decisionmaking (Lagardera & Lavega, 2004).

The mood states (MS) in sports

When an athlete intervenes by running, swimming, lifting weights or passing a ball, he or she mobilises all the dimensions of their personality, from the energetic involvement necessary to carry out his/her activity, to his/her affective reactions, his/her decision-making process, his/her way of relating to other athletes, among others (Parlebas, 2001).

Sports competition directs player training towards the quest for high performance or, in other words, victory. However, that objective is not always attained. Thus, an athlete's affective life is full of affective experiences linked to success and failure, that is to say, to the stress surrounding the competition outcome (Hannin, 2000; Lagardera & Lavega, 2004; Lazarus, 2000).

Mood states have been investigated using self-reporting instruments. One of the most well-known is the Profile of Mood States (POMS) questionnaire (Mcnair et al., 1971), which enables athletes' mood states (MS) to be identified in any sports intervention.

The POMS questionnaire has been applied to different sports disciplines (e.g., wrestling, athletics, football, rowing and swimming) because of its effectiveness in predicting sporting success or failure, fatigue, overtraining and the psychological benefits of exercise programs on participants' mood states (Andrade et al., 2000). In addition, it has enabled MS and the optimal performance profile – the "iceberg profile" (Morgan, 1980) – to be studied in different population groups by gender and by competition level (Berger & Owen, 1983; Gondola & Tuckman, 1982; Morgan & Pollock, 1977). This profile is characterised by experiencing intense positive MS (Vigour-Activity) and low negative MS values (e.g., Tension-Anxiety, Anger-Hostility, Fatigue-Immobility and Depression-Dejection) (Morgan, 1980).

Sporting background and mood states

Every competitive experience leaves an affective mark on an athlete's personality, which shapes his or her affective sports background (SB) that is influenced by different aspects such as: a) sport of provenance, b) the volume of training (hours of weekly practice and years of experience in the sport) (Glaser, 1996), and c) the level of sport achieved (González et al., 2016).

Depending on the type of sport practiced, the way of experiencing affective experiences, particularly in MS, will be different. In some cases, athletes have to deal with MS without interacting with other people (psychomotor sports). In other sports, MS are the result of events that occur when interacting with teammates and/or opponents. These are affective experiences of a different nature.

Gender and sport

The scientific evidence has shown significant differences between men and women doing high performance sport (Clarke, 2002; Eccles & Harold, 1991; Muñoz et al., 2017). From an affective point of view, differences have also

been found in the MS that men and women express. Thus, women usually prefer cooperative motor practices (e.g., team rhythmic gymnastics), whereas men feel more comfortable in match sports (e.g., judo and boxing) (Duran & Costes, 2018; Lavega, Alonso et al., 2014; Lavega, Planas et al., 2014; Romero-Martín et al., 2017). In competitive situations, women usually experience greater intensity in emotions such as anxiety or fear, and less intensity in positive emotions such as happiness, joy and affection than men (Barrett & Bliss-Moreau, 2009; Eccles & Harold, 1991; Else-Quest et al., 2012).

Mindfulness techniques (MT)

Mindfulness techniques (MT) are an effective training method for raising awareness (self-awareness) of our affective states, enabling us to subsequently manage them and strive for stress reduction, well-being and psychosomatic balance (Howell & Buro, 2011; Jackson & Csikszentmihalyi, 1999). Such motor practices are based on attention enhancement, body care, conscious breathing exercises, joint and postural release or stretching, among others done individually (Broderick & Metz, 2009; Lagardera & Lavega, 2003; Rovira et al., 2014).

The stress associated with the immediacy of high-performance needs does not leave much time for these types of training because, in relation to the short-term impact they have, they are seen as complementary. Moreover, many athletes are reluctant to embrace practices like these because they have not had the necessary training in them (Hertzman & Power, 2006).

According to what has been argued so far, it is likely that people who experience MT unequally modify their MS according to gender and the sport they have practiced (Bisquerra, 2000; Duran & Costes, 2018). Likewise, the volume of training and the sport level achieved by athletes may condition their MS in the practice of MT.

However, it is true that athletes, regardless of their gender and sporting background, need to find a space to listen to and regulate themselves in order to be aware of their MS in each of the situations in which they participate in their sport (Jackson & Csikszentmihalyi, 1999) and achieve their full potential. Thus, MT can be an appropriate method to learn to observe oneself and pay attention to the MS (affective awareness phase) of athletes. All of this can have a positive impact on self-knowledge, sports performance and general affective well-being (Brandt et al., 2016; Schonert-Reichl & Lawlor, 2010).

For all of the above, the objective of this research was to study the effect of mindfulness motor practices (MT) on mood states (MS) in men and women (future sports coaches), according to their sport background (SB) according to: a) motor interaction, b) practice space, c) number of hours of weekly practice, and d) level of competition.

Method

The design of this research was cross-sectional predictive (Ato et al., 2013) since the functional relationship of different predictor variables (independent variables) on the criterion variable (dependent variable) was explored. The sample was purposive (not randomized) and no form of control of extraneous variables on the functional relationship was employed since being an educational experience the usual conditions of the sessions were not modified (distribution of the groups of students, number of students of male and female gender...).

Participants

There were 300 participants, all of whom were first-year students on the undergraduate degree in Physical Activity and Sports Sciences at the University of Girona, Spain. The students had registered in one of two academic years: 2011/12 or 2012/13. Of the total number of participants, 246 (82%) were men and 54 (18%) were women aged 18 to 35 years (M = 20.04, SD = 2.73). The profile of the students was varied in relation to their sport provenance (according to motor action domains): a) psychomotor (e.g., climbing and skiing) 10.5%; b) cooperation (e.g., human pyramids and team rhythmic gymnastics) 3.5%; c) opposition (e.g., combat sports and badminton) 14.7%; and d) cooperation-opposition (e.g., football, basketball and rugby) 71.2%.

Before the sessions started, the participants gave their consent to taking part voluntarily in this experiment. This study was approved by the University of Lleida's Ethics Committee.

Instruments

To assess the SB, a questionnaire was used. In it, the participants indicated the sport and the weekly number of hours of training they did, as well as the competition level. Based on this information, the data were classified and analyzed and the participants were classified as athletes with less sport background (SB-) or a more advanced one (SB+). Athletes with SB- were those who practiced fewer than or equal to 5 hours per week and did not have experience in the competitive sphere; athletes with SB+ were those who practiced more than 5 hours per week and competed at regional or high-performance levels.

The participants' mood state assessment was done using a shorter version of the Profile of Mood States (POMS) questionnaire (McNair et al., 1971) which had been adapted to the Spanish context and validated (Fuentes et al., 1995). Some of the items present in the POMS to assess MS were restless, exhausted, exhausted, happy, relaxed, among others. The items were rated 0 (not at all) to 4 (a lot) and were grouped into five factors (four with a negative orientation and one with a positive orientation). The internal consistency values (Cronbach's alpha) values recorded for the five factors

are shown below. The negative orientation factors were Tension-Anxiety (TA) (α = .83), Depression-Dejection (DD) (α = .80), Anger-Hostility (AH) (α = .84) and Fatigue-Immobility (FI) (α = .86), and the positive orientation factor was Vigour-Activity (VA) (α = .85).

Procedure

Firstly, a training session was held to explain the participation conditions (the participants gave their consent to taking part voluntarily in this pedagogical experiment), the POMS questionnaire and the dimensions thereof. They were also given instructions on how to fill it in.

Subsequently, the students participated in two mindfulness sessions aimed at working on the awareness of different parts of the body, in different situations, alone and in the presence of other people. Two sessions were considered sufficient to observe some initial effects of mindfulness practices on MS. The sessions lasted 1 hour and 30 minutes. During each session, four activities were undertaken where participants had the presence of other peers who could be of the same or opposite gender. In each session the students filled the POMS questionnaire at the beginning and end of each session, indicating the value that most closely matched their mood state at that moment. At the end of the session the lecturer collected all the forms.

Data analysis

The data were analyzed using the generalized linear model, specifically generalized estimating equations (GEE), Gaussian family with an exchangeable correlation structure because the data did not present a normal distribution and the design was the repeated measures one. The results of interactions between variables were accompanied by the effect size based on Cohen's d, adapted by Wolf (1986) for repeated measures. SPSS v.19.0 statistics software was used.

Results

We have chosen to describe the results according to the effect of the characteristics of the sport of provenance (motor interaction and practice space), level of sport background (number of hours of weekly practice, and level of competition) and gender and their interactions on the different mood states (table 1).

Characteristics of the sport of provenance and mood states.

The participants' sport of provenance significantly affected negative mood states (MS), specifically D-D, A-H and F-I during the mindfulness sessions. Participants from psychomotor sports presented fewer changes in their negative mood states and a high increase in their positive mood state, thereby reflecting the iceberg profile (Figure 1) Then came participants from opposition sports (opposition and cooperation-opposition) who presented less negative values. When participants came from cooperation sports, the mood states were more negative compared to other domains of provenance (Figure 1).

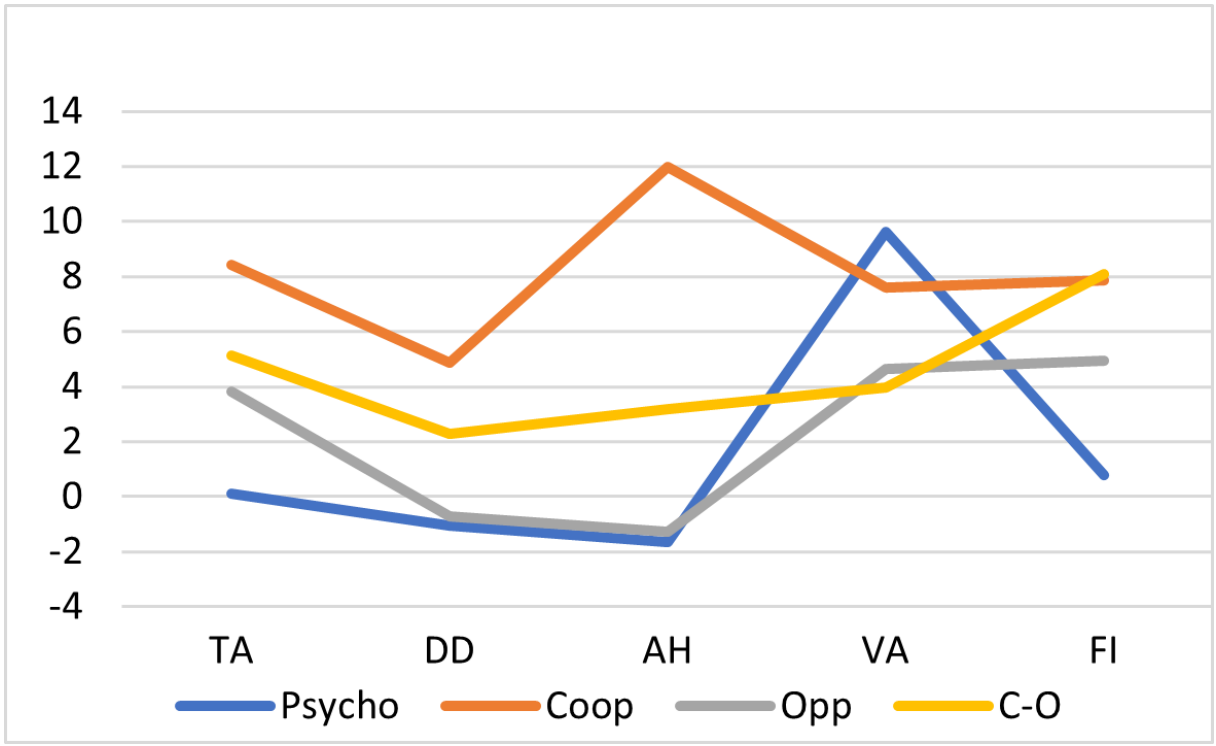

Figure 1. Iceberg profile in athletes, by sport of provenance

Table 1. Model effect tests

Factor	X^2	gl	Sig.
Tension-Anxiety			
Sport of provenance	5.056	3	.168
Sport of provenance space	0.745	1	.388
Hours	8.194	2	.017
Competition level	1.978	2	.372
Gender	0.745	1	.388
Sport of provenance * Sport of provenance space	0.759	1	.384
Sport of Provenance * Hours	17.850	3	<.001
Sport of provenance * Competition level	9.403	2	.009
Sport of Provenance * Gender	3.789	2	.150
Depression-Dejection			
Sport of provenance	26.752	3	<.001
Sport of provenance space	0.799	1	.371
Hours	14.264	2	.001
Competition level	15.595	2	.000
Gender	3.259	1	.071
Sport of provenance * Sport of provenance space	6.214	1	.013
Sport of Provenance * Hours	15.735	3	.001
Sport of provenance * Competition level	4.082	2	.130
Sport of Provenance * Gender	1.336	2	.513
Anger-Hostility			
Sport of provenance	20.281	3	<.001
Sport of provenance space	4.836	1	.028
Hours	1.269	2	.530
Competition level	25.483	2	.000
Gender	3.599	1	.058
Sport of provenance * Sport of provenance space	4.860	1	.027
Sport of Provenance * Hours	14.812	3	.002
Sport of provenance * Competition level	15.240	2	<.001
Sport of provenance * Gender	5.407	2	.067
Vigour-Activity			
Sport of provenance	4.977	3	.173
Sport of provenance space	9.069	1	.003
Hours	11.828	2	.003
Competition level	19.767	2	<.001
Gender	2.753	1	.097
Sport of provenance * Sport of provenance space	0.057	1	.811
Sport of Provenance * Gender	16.924	2	<.001
Sport of Provenance * Hours	40.128	3	<.001
Fatigue-Immobility			
Sport of provenance	7.900	3	.048
Sport of provenance space	0.683	1	.409
Hours	4.962	2	.084
Competition level	4.036	2	.133
Gender	1.975	1	.160
Sport of provenance * Sport of provenance space	6.563	1	.010
Sport of Provenance * Hours	5.677	3	.128
Sport of provenance * Competition level	1.553	2	.460
Sport of Provenance * Gender	5.684	2	.058

When studying the detail of the significant changes in the mood state dimensions in relation to the sport of provenance type, the following was observed:

a. The values for participants from opposition sports were higher in F-I (*M* = 4.93, *SD* = 1.189, *p* = .007, *d* = 2.888, *CI* [2.72, 3.05]) and lower in V-A (*M* = 3.97, *SD* = 1.102, *p* = .002, *d* = 3.479, *CI* [3.29, 3.66]) compared to those for participants from psychomotor sports in F-I (*M* = .78, *SD* = 1.697) and V-A (*M* = 9.62, *SD* = 2.015).

b. The values were also significantly higher for participants from cooperation-opposition sports in D-D (*M* = 2.27, *SD* = .724, *p* = .004, *d* = 4.186, *CI* [3.97, 4.39]), A-H (*M* = 3.18, *SD* = .922, *p* < .001, *d* = 3.868, *CI* [3.67, 4.06]) and F-I (*M* = 8.09, *SD* = 1.263, *p* < .001, *d* = 4.887, *CI* [4.65, 5.11]), and lower in V-A (*M* = 4.63, *SD* = 1.232, *p* < .012, *d* = 2.988, *CI* [2.81, 3.15]) compared to those for participants from psychomotor sports in D-D (*M* = -1.06, *SD* = .861), A-H (*M* = -1.65, *SD* = 1.506), F-I (*M* = 0.78, *SD* = 1.697) and V-A (*M* = 9.62, *SD* = 2.015).

c. Participants from cooperation sports presented higher values in D-D (*M* = 4.85, *SD* = 1.510, *p* = .007, *d* = 4.808, *CI* [4.57, 5.03]) and A-H (*M* = 11.97, *SD* = 2.838, *p* < .001, *d* = 5.995, *CI* [5.73, 6.28]) compared to participants from psychomotor sports in D-D (*M* = -1.06, *SD* = 0.861) and A-H (*M* = -1.65, *SD* = 1.506); there was no significant change in V-A or F-I.

Regarding the space (certain or uncertain) in which the players did the sport, there were significant interactions on mood states of A-H (*p* = .028) and V-A (*p* = .003). When considering the interaction between the space where a sport is done and the sport of provenance, significant changes were observed (*p* < .007) in MS (D-D and A-H). It was found that participants from psychomotor sports in stable spaces presented significantly lower MS values compared to those from cooperation sports (cooperation and cooperation-opposition) in stable spaces (Table 2).

Table 2. Interaction between sport of provenance and the type of space in which it is done on MS

Stable space								
Motor action domain	Depression-Dejection				Anger-Hostility			
	M	SD	d	95% CI	M	SD	d	95% CI
Psychomotor	-0.98	0.840	...		-1.66	1.366	...	
Cooperation	5.40**	1.118	5.56	[5.30, 5.81]	8.54*	2.464	3.453	[3.27, 3.63]
Opposition	...	...	...		...	...	...	
Cooperation-Opposition	1.91*	0.645	2.68	[2.52, 2.84]	2.28*	0.695	0.572	[0.45, 0.69]

Note: * *p* < .05, ** *p* < .001.

Level of sporting background and mood states

When analysing the interaction between sporting background (training volume and competition level) and the sport of provenance, significant changes were found in MS when comparing athletes with a more advanced sporting background (SB+) to those with a less advanced one (SB-).

Athletes from psychomotor and cooperation sports with SB- presented higher levels in T-A and A-H compared to those with SB+ (Table 3). By SB, participants from opposition and cooperation-opposition sports did not present any significant changes in T-A, but they did experience significant changes in A-H (Table 3). In contrast, those with SB+ experienced greater V-A compared to those with SB-, with the exception of athletes from cooperation sports (Table 3 and 4).

Gender and sport of provenance on mood states

When analyzing the sport of provenance variable and its interaction with gender, significant differences (*p*< .001) were only observed in the positive dimension of MS (V-A). Men participants from psychomotor sports (*M* = 12.63, *SD* = 2.860, *p* <.001, *d* = 3.519, *CI* [3.33, 3.70]) and opposition sports (*M* = 5.14, *SD* = 1.310, *p* <.001, *d* = 2.418, *CI* [2.26, 2.57]) presented higher values compared to women participants from these groups of sports (psychomotor: *M* = 5.09, *SD* = 1.002; opposition: *M* = 2.23, *SD* = 1.087).

In contrast, men from cooperation sports presented significantly lower values (*M* = 4.28, *SD* = 3.055, *p* <.001, *d* = 2.394, *CI* [2.24, 2.54]) compared to women (*M* = 12.58, *SD* = 3.836). No differences were found between men and women from cooperation-opposition sports.

Table 3. Effect of sporting background and sport of provenance on MS during mindfulness practices

Dimension	Sport of provenence	Sport Background in hours of practice					
		SB-		SB+			
		M	***SD***	***M***	***SD***	***d***	***95% IC***
Tension-Anxiety	Psychomotor	-2.4*	1.404	1.08	0.977	2.858	[2.69, 3.02]
	Cooperation	8.98*	2.789	6.89	2.515	0.787	[0.66, 0.90]
	Opposition	...	...	...	...		
	Cooperation - Opposition	...	...	...	...		
Anger-Hostility	Psychomotor	-3.24**	1.688	0.89	0.982	2.991	[2.82, 3.15]
	Cooperation	...	...	...	...		
	Opposition	...	...	...	...		
	Cooperation - Opposition	5.32*	1.066	2.96	0.963	2.323	[2.17, 2.47]
Vigour-Activity	Psychomotor	6.28*	2.280	11.73	1.537	2.782	[2.61, 2.94]
	Cooperation	11.06*	3.796	7.57	3.483	0.958	[0.83, 1.08]
	Opposition	1.28**	0.914	6.41	1.113	5.037	[4.80, 5.27]
	Cooperation - Opposition	3.41**	1.216	6.66	1.172	2.721	[2.56, 2.88]

*Note: * p < .05, ** p < .001*

Table 4. Effect of sporting background according to competition level and sport of provenance on MS during mindfulness practices

Dimension	Sport of provenence	Sport background according to competition level					
		SB+					
		M	***SD***	***M***	***SD***	***d***	***95% IC***
Tension-Anxiety	Psychomotor	-5.19*	3.597	1.91	0.937	2.701	[2.54, 2.86]
	Cooperation	...	...	...	...		
	Opposition	...	...	...	...		
	Cooperation - Opposition	...	...	...	...		
Anger-Hostility	Psychomotor	-9.71*	4.432	2.98	1.138	3.922	[3.72, 4.12]
	Cooperation	32.72**	8.694	4.54	0.979	4.555	[4.33, 4.77]
	Opposition	3.79*	0.782	0.03	1.345	3.418	[3.23, 3.59]
	Cooperation - Opposition	8.74*	1.388	3.35	1.089	4.321	[4.10, 4.53]
Vigour-Activity	Psychomotor	...	...	...	...		
	Cooperation	...	...	...	...		
	Opposition	...	...	...	...		
	Cooperation - Opposition	...	...	...	...		

Discussion

The aim of this research was to study the effect of mindfulness motor practices (MP) on mood states (MS) in men and women (future sports trainers tr, attending to their sport background (SB) according to: a) motor interaction, b) practice space, c) number of hours of weekly practice, and d) competition level.

Characteristics of the sport of provenance and mood states

The internal logic of mindfulness practices calls upon athletes to search within themselves and to do some self-exploratory work that contributes to their affective self-awareness. In such situations, there is no motor interaction with anyone else because the task has to be done

individually. The internal logic of such tasks is similar to that of psychomotor sports in a stable environment. Thus, as this research shows, it was to be expected that athletes with a psychomotor sports background would display an optimal iceberg profile in their MS for performance (Morgan, 1980). Such practices are more pleasant for athletes who are used to doing psychomotor tasks than for those who are not so used to doing them because their disciplines are governed by the individual or team 'match' concept, a situation that leads them to have a more heterogeneous affective experience, probably due to the relational non-specificity with their usual practice (Abernethyet al., 2005; Coulomb-Cabagno & Rascle, 2006).

In contrast, when athletes are from opposition or team sports, the iceberg profile is not optimal because the negative MS values are higher than the positive MS ones. They are people who are used to focusing attention on others (opponents and teammates) and, in practices like these, when focusing attention on themselves, the MS they experience express ill-being (Lavega, Alonso et al., 2014; Romero-Martín et al., 2017). This might explain why athletes like those need more persistent affective training to learn to listen to themselves and manage their mood states, feelings and emotions in unfamiliar situations (Hannin, 2000). This would represent a huge challenge for trainers.

Sporting background and mood states

In general, participants with SB+ experienced a more satisfactory affective experience than those with SB¿sería SB-?. Their self-awareness increased as their sporting career advanced; they had learnt to listen to themselves and to better identify their physical and affective states, and they positively valued experiences like these aimed at taking care of their body and mind for competition (Bernier et al., 2009).

Thus, it would be expedient for trainers to consider using mindfulness practices during the training process, especially in the early stages, because it would enable them to integrate a wide range of experiences into their motor expertise, thereby benefiting from the positive effects on their MS (Bernier et al., 2009; Napoli et al., 2005).

Gender and sport of provenance on mood states

By sport of provenance and its interaction with gender, men from opposition and psychomotor sports expressed a more positive affective experience than women, a strange finding considering that, according to social stereotypes, it is usually women who express more positive values in practices like these (Eccles & Harold, 1991; Else-Quest et al., 2012). This finding leads us to think that activities like these are also of interest to men.

In contrast, women from cooperation sports expressed greater well-being than men from the same domain. In this case, it seems that what was mentioned previously could be confirmed, that women with a SB in cooperation sports come from disciplines requiring a very high component of bodily expression, breathing and postural control that is nonetheless linked to the service of the group (cooperation domain), whereas men from cooperation sports (e.g., rowing) are more linked to expressions of strength, thus, the gender-related differences in this motor action domain are important (Eccles, 1987; Eccles & Harold, 1991).

Conclusions

This study confirms the need to improve sports trainers' holistic training. High competition environments require trainers who are competent not only in the specific matters of their sport, but also in the development of affective competencies to: a) be aware of the effect of motor tasks (according to their internal logic) undertaken in training on mood states; and b) properly select training tasks to enable their athletes to unleash their best performance in competitive situations of utmost affective vibrancy. For such purposes, trainers have at their disposal a valuable resource: mindfulness techniques. Such techniques should be incorporated into the training process from an early age and continue right up to maximum performance. The aim of these motor tasks is to improve sports performance by fostering awareness and affective regulation.

In this process of optimising athletes' performance, trainers should bear in mind certain key aspects that could have an impact thereon, such as the athletes' gender and unique sports biographies (characterised by the internal logic of the sport of provenance and their sporting background).

Limitations and future research

The limitation of this work is the small number of mindfulness sessions, as well as the use of a single questionnaire to detect mood states. It should be further developed, incorporating other questionnaires and other data collection techniques such as individual interviews or focus groups.

Funding

This study has been funded by the Ministry of Science and Innovation through R+D+i projects, and projects DEP2010-21626-C03-01, DEP2010-21626-C03-02, y DEP2010-21626-C03-03. It has also been financed by the National Institute of Physical Education of Catalonia. [INEFC-Lleida] project PARINEFC2016_005.

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