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Study of the relationship between motivation towards physical activity and its relationship with anxiety and self-concept in the educational setting. A systematic review

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ABSTRACT

Motivation is one of the most studied elements in sport psychology due to its great potential to explain the attitude towards sport practice. Therefore, the present systematic review aims to analyse the effects of sport-oriented motivation on physical activity, anxiety and self-concept. The Web of Science and SCOPUS databases were used to select articles published between 2012 and 2022. The criteria established by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement were followed for the elaboration of the systematic review, with the final analysis sample comprising a total of 19 articles. Finally, the analysis of the data reveals that developing sport motivation from extrinsic or intrinsic values can help to decrease or increase anxiety levels. In addition, intrinsic motivation is beneficial for channelling disruptive states, while extrinsic motivation helps to increase anxiety levels when the proposed objectives are not achieved.

Estudio de la relación entre la motivación hacia la práctica de actividad física y su relación con la ansiedad y el autoconcepto. Una revisión sistemática

Palabras clave:
Motivación hacia el deporte
Ansiedad
Autoconcepto
Educación

RESUMEN

Actualmente, la motivación es uno de los elementos más estudiados en la psicología del deporte debido a su gran potencial para explicar la actitud hacia la práctica deportiva. Es por ello que la presente revisión sistemática presenta el objetivo de analizar los efectos de la motivación orientada hacia el deporte sobre la práctica de actividad física, la ansiedad y el autoconcepto. Para ello se han utilizado las bases de datos de Web of Science y SCOPUS eligiéndose los artículos publicados entre los años 2012 y 2022. Para la elaboración de la revisión sistemática se han seguido los criterios establecidos por la declaración de los Elementos de Información Preferidos para Revisiones Sistemáticas y Meta-Análisis (PRISMA), quedando la muestra final de análisis compuesta por un total de 19 artículos. Finalmente, el análisis de los datos revela que desarrollar una motivación deportiva desde valores extrínsecos o intrínsecos puede ayudar a disminuir o a aumentar los niveles de ansiedad. Además, también se observa como la motivación desarrollada a través de valores extrínsecos supone jugar un papel clave en el abandono de la práctica de actividad físico deportiva, debido a la frustración y empeoramiento de la imagen mental generada a nivel profesional cuando no se consiguen los objetivos propuestos.

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Introduction

Currently, there is a growing concern related to the practice of physical activity, as during adolescence there is a decrease in the practice of physical activity (Williams et al., 2022). The regular practice of physical exercise has a positive impact on several areas such as physical and psychological (San Román-Mata et al., 2020). Despite the various health benefits of an active lifestyle, during adolescence the time spent doing physical activity decreases, as young people opt for more sedentary activities (Aira et al., 2021). Furthermore, Kandola et al. (2020) state that this stage of development plays a key role in the acquisition of an active lifestyle in adulthood. Toussaint et al. (2021) conclude that the role of the physical education teacher is a favourable element for the creation of an active lifestyle, due to the motivation that he or she provides to the development of the physical education class.

Within the field of sport physics, motivation is one of the most studied due to its great impact to explain the attitude towards sport practice (González-Valero et al., 2017). Motivation represents the drive and energy that directs behavior toward a desired goal (Veiga et al., 2021; Vallerand., 1997). Motivation is not as a global construct instead of a multidimensional construct which includes different dimensions (Van den Broeck et al., 2021). The most widely used theory within the motivational field is the one proposed by Nicholls (1989), known as the Achievement Goal Theory. It proposes the concept of motivational climate, which can be defined as a set of indicators that people perceive in their environment and through which they define the failure or success of a given task (Ramírez-Granizo et al., 2020; Nicholls, 1989). The application of this theory to the field of sport implies the appearance of two motivational climates when it comes to guiding sporting practice (Goudas, 1998; Núñez et al., 2006). The first of these is the task climate, where the presence of intrinsic values such as personal satisfaction and fun acquires great importance, while in the second, known as the ego climate, extrinsic values acquire greater importance, promoting competition and social recognition (Castro-Sánchez et al., 2018). When sport practice is oriented towards the ego climate, there is an increase in disruptive states such as anxiety when the proposed objectives are not achieved (Castro-Sánchez et al., 2019; Papaioannou and Kouli, 1999).

Another of the most studied factors in the field of sport psychology is anxiety. This state is defined as a negative psycho-emotional state characterised by the manifestation of harmful states such as worry and nervousness, directly affecting the cognitive and somatic

Table 1
Set of studies that make up the selected sample

Authors (Year)	Country	Design	Sample	Gender	Population (Age)
Melguizo-Ibáñez et al. (2022)	Spain	Cross Sectional Study	556	417 women 139 men	University Education (23.06 ± 6.23).
Dimas et al. (2021)	Canada	Cross Sectional Study	52	52 women	University Education (-)
Casali et al. (2021)	Italy	Cross Sectional Study	204	110 women 94 men	University Education (22.55±5.76)
Brazzet-Jones et al. (2021)	USA	Cross Sectional Study	286	124 women 162 men	Secondary Education (-)
Horenstein et al. (2021)	USA	Cross Sectional Study	603	434 women 169 men	University Education (20.77±4.03)
Cecchini et al. (2020)	Spain	Cross Sectional Study	714	714 women	Secondary Education (16.53±1.01)
Herbert et al. (2020)	Germany	Longitudinal study	185	157 women 28 men	University Education (22.54±2.93)
Pila et al. (2020)	Canada	Longitudinal study	518	518 women	Secondary Education (-)
Pluhar et al. (2019)	USA	Cross Sectional Study	38	38 men	University Education (20.68±2.66)
Hogue et al. (2017)	USA	Intervention controlled and randomized	47	26 women 21 men	Elementary Education (11.9±0.94)
Lodewyk y Sullivan (2016)	Canada	Cross Sectional Study	394	198 women 196 men	Secondary Education (15.13±3.25)
Boone y Brausch (2016)	USA	Cross Sectional Study	166	113 women 53 men	Secondary Education (14.48±0.66)
Howle et al. (2016)	Australia	Cross Sectional Study	283	136 women 143 men 4 do not specify	University Education (20.89±5.21)
Jackson et al. (2014)	Australia	Cross Sectional Study	457	205 women 248 men 4 do not specify	Secondary Education (14.20±1.57)
O'Rourke et al. (2014)	USA	Longitudinal study	238	141 women 97 men	Elementary Education (11.90±1.33)
Sicilia et al. (2014)	Spain	Cross Sectional Study	398	178 women 220 men	Secondary Education (15.08±1.94)
Hogue et al. (2013)	USA	Intervention controlled and randomized	107	61 women 46 men	University Education (19.89±1.80)
Cox et al. (2013)	USA	Cross Sectional Study	298	179 women 119 men	Secondary Education (15.72±1.24)
Brunet et al. (2012)	Canada	Cross Sectional Study	205	(-)	University Education (18.87±1.83)

aspects (Pineda-Espejel et al., 2021). In this case Howell et al. (2021) claim that motivational climate can help to decrease disruptive states such as anxiety and stress. When motivation is oriented towards the task climate, a decrease in anxiety levels is achieved, due to the segregation of neurotransmitters and the presence of intrinsic factors, however when practice is oriented towards the ego climate, an increase in anxiety levels is produced, as participants focus on competition, where success is defined as overcoming rivals and demonstrating superior ability (Gómez-López et al., 2020). Mascret et al. (2021) state that when there is a continuous subjection to levels of anxiety, a distortion of the self-concept is produced, worsening the mental image that people have of themselves.

Self-concept has been defined in different ways, however, the most widely shared definition in the scientific field is the one proposed by Conde-Pipó et al. (2021), which states that this concept is the perception that people have of themselves when interacting with the environment around them. An important issue is whether the self is an unidimensional or a multidimensional construct (Marsh and Shavelson, 1985; Chen et al., 2020). On the one hand, from a unidimensional perspective, some models are based on the conceptualization of the self as a global evaluative component (Baumeister et al., 2003; Rosenberg 1979). On the other hand, others follow a multidimensional and hierarchical conceptualization such as the one proposed following Shavelson et al. (1976), with specific

Table 2
Analysis of the study sample (continue)

Authors (Year)	Objetive	Variables	Instruments	Conclussions
Melguizo -Ibáñez et al. (2022)	To develop an explanatory model of sport motivation and its relationship with anxiety and social and physical self-concept. To test the structural model by means of a multi-group analysis according to sex.	Sociodemographic Variables	Socio-demographic Questionnaire	The male sex orients sport motivation towards ego climate, obtaining higher levels of anxiety, however, for the female sex, anxiety has an impact on the development of social self-concept impact on the development of social self-concept.
		Motivational Climate	PMCSQ-2	
		Anxiety	BAI	
		Physical Self-Concept	AF-5	
		Social Self-Concept		
Dimas et al. (2021)	To study whether clothing type influences levels of body shame, anxiety, physical appearance and sports performance.	Physical Appearance	TST	Participants who wore swimming costumes showed poorer physical appearance, higher levels of anxiety, body shame and lower levels of intrinsic motivation.
		Anxiety	S-SPAS	
		Body Shame	WBR-S	
		Intrinsic Motivation	IMI	
		Sociodemographic Variables	Socio-demographic Questionnaire	
Casali et al. (2021)	To assess the changes produced by COVID-19 confinement on physical activity levels, quality of life, sport motivation, psychological distress, intolerance to uncertainty and body satisfaction.	Physical Activity	IPAQ-S	Confinement due to COVID-19 decreased levels of Physical Activity and worsened variables related to the psychological domain.
		Sport Motivation	BREQ-2	
		Psychological Distress	DASS-21	
		Intolerance Uncertainty	IUS-R	
		Body Satisfaction	SF-12	
		Sociodemographic Variables	Socio-demographic Questionnaire	
Brazzet-Jones et al. (2021)	To determine whether the restrictions imposed by COVID-19 have influenced sport practice, socialisation, well-being and mental health.	Physical Activity	Self-prepared Questionnaire	The restrictions imposed by COVID-19 have decreased levels of sports practice, socialisation and well-being. There is also a worsening of mental health.
		Well-being	Self-prepared Questionnaire	
		Sleep duration	PSQI	
		Sociodemographic Variables	Socio-demographic Questionnaire	
Horenstein et al. (2021)	To study the relationships between anxiety, BMI, stigma, sport motivation and the practice of physical activity. To understand the relationship between BMI and PA practice and how anxiety influences this relationship.	Physical Activity	IPAQ-SF	Social anxiety moderated the relationship between BMI and motivation to avoid exercise; individuals with higher BMI were motivated to avoid exercise, but only if they showed higher social anxiety
		Social Anxiety	SIAS-S	
		Body Stigma	SSI	
		Sociodemographic Variables	Socio-demographic Questionnaire	
Cecchini et al. (2020)	To examine the associations between physical activity levels, sedentary behaviours, self-determined motivation and depressive symptoms in girls during adolescence.	Depressive symptoms	S-DS	Teenagers who engaged in moderate- or high-intensity Physical Activity were significantly less likely to suffer from depressive symptoms.
		Physical Activity	IPAQ	
		Motivation	SIMS	
		Sedentary Lifestyle	Self-prepared Questionnaire	

Table 2
Analysis of the study sample (continued)

Authors (Year)	Objetive	Variables	Instruments	Conclussions
Herbert et al. (2020)	Examining the mental health, wellbeing and regular physical activity of university students Exploring the potential health benefits of short-term aerobic exercise in university students in an online and laboratory study.	Depression Anxiety Stress Quality of Life Physical Activity Sociodemographic Variables	BDI-II STAI SCI WHOQOL-BREF GPAQ Socio-demographic Questionnaire	There is a positive relationship between regular physical activity, cardiovascular fitness, mental health and well-being among university students.
Pila et al. (2020)	To describe changes in self-conscious emotions related to fitness, appearance and sporting experiences over time. To examine whether between- and within-person differences in these emotions predict sporting experiences during adolescence.	Emotions (Physical State) Emotions (Appearance) Sports commitment Sports enjoyment Sport Anxiety Sociodemographic Variables	BSE-FIT BASES SCS SCS SAS-2 Socio-demographic Questionnaire	Differences in sporting experiences were due, in part, to between-person variations in fitness-related shame, guilt and both facets of pride. Similar results were observed for appearance-related emotions.
Pluhar et al. (2019)	To determine whether athletes' motivations differ between team and individual sports.	Motivation Anxiety Depression Sociodemographic Variables	Marx Activity Rating Scale Self-prepared Questionnaire Self-prepared Questionnaire Socio-demographic Questionnaire	Participants in individual sports are more likely to experience anxiety and depression than those in team sports. anxiety and depression than those who play team sports.
Hogue et al. (2017)	To investigate whether motivational climates have a differential impact on adolescents' psychological and physiological responses to stress.	Motivational Climate Climate Care Affect Enjoying Effort Anxiety Stress Adaptive Motivational Responses Sociodemographic Variables	PMCSQ CCS PANAS SSC IMI CSAI-2 Self-prepared Questionnaire MacArthur Subjective Social Status Scale Socio-demographic Questionnaire	Motivational climate may have a differential impact on teenagers' stress responses. EI climates elicit both physiological and psychological stress responses in young people.
Lodewyk y Sullivan (2016)	To test the path relationships between body dissatisfaction, test anxiety, self-efficacy and fitness-related outcomes in physical education. Determine whether these differ according to gender and level of body dissatisfaction.	Body Dissatisfaction Physical Fitness Self-efficacy	BSD Healthy Active Living Education MSLQ	Body image concerns and elevated levels of anxiety appear to underpin the influence of self-efficacy on physical education fitness ratings. This is particularly true for women, although both women and men with a body dissatisfaction disorder are likely to have lower motivation for fitness and achievement in physical education.
Boone y Brausch (2016)	To identify the relationship between physical activity, depressive symptoms and non-suicidal self-harm. To examine how exercise motivations were related to non-suicidal self-harm.	Sociodemographic Variables Physical Activity Non-suicidal self-injury Depression Motivation	Socio-demographic Questionnaire EQ ISAS RADS-2 EMI-2	Appearance-based exercise motivations were significantly related to increased frequencies of non-suicidal self-harm. Overall, Physical Activity may possess a protective character against non-suicidal self-harm, especially in individuals with depressive symptoms.

Table 2
Analysis of the study sample (continue)

Authors (Year)	Objetive	Variables	Instruments	Conclussions
Howle et al. (2016)	To examine the relationships between self-presentation motives and physical activity task performance.	Self-presentation Task self-efficacy Motivation	SMPAQ Self-prepared Questionnaire SPEQ	Positive relationships were obtained between task motivation, self-presentation and task-oriented self-efficacy.
Jackson et al. (2014)	To examine the predictive relationship between group-focused perceptions of RISE and self-efficacy	Self-efficacy Enjoying Intention Anxiety Academic Achievement	Self-prepared Questionnaire IMI Self-prepared Questionnaire SPAS Self-prepared Questionnaire	The results provide evidence that it may be important to take into account individuals' group-centred appraisals when investigating the network of efficacy perceptions that develop in group sport contexts.
O'Rourke et al. (2014)	To compare the relationships between participants' end-of-season perceptions of coach- and parent-initiated climates, self-esteem, performance anxiety, and intrinsic and extrinsic motivation.	Family Motivational Climate Coach Motivational Climate Anxiety Self-determination Self-esteem	PIMCQ-2 MCSYS SAS-2 Self-Regulation Questionnaire WSDQ	Parent-initiated motivational climate is a significant predictor of end-of-season self-esteem, trait anxiety and autonomous regulation over coach-initiated motivational climate.
Sicilia et al. (2014)	To analyse the relationship between the satisfaction of basic psychological needs, types of sport motivation and physical social anxiety.	Sociodemographic Variables Basic Psychological Needs in Exercise Sport Regulation Anxiety	Socio-demographic Questionnaire BPNES BREQ-3 SPAS	A positive influence of perceived competence and different types of motivation on the reduction of Anxiety is observed.
Cox et al. (2013)	To explore how physical and social anxiety combined with different patterns of motivation might facilitate or impede effort and enjoyment in physical education and leisure-time physical activity.	Sociodemographic Variables Anxiety Motivation Physical Activity Enjoying	Socio-demographic Questionnaire SPA LCS PAQ-A Self-prepared Questionnaire	A greater sense of Anxiety in education classes is related to lower levels of enjoyment and effort in physical education.
Hogue et al. (2013)	To examine whether an ego climate causes an increase in the stress-responsive hormone cortisol, as well as negative psychological changes, following the learning of a new skill, compared to a task climate.	Anxiety Enjoying Effort Motivational Climate Climate Care Sociodemographic Variables	CSAI-2 Escala de Duda y Nicholls IMI PMCSQ CCS Socio-demographic Questionnaire	Ego-climate oriented participants experienced higher cortisol responses after the juggling session and higher anxiety, stress, embarrassment and self-consciousness compared to task-climate oriented participants.

dimensions and a global one, so that the global component (self-esteem) integrates the specific components (self-concept).

Different theoretical dimensions (academic, social, emotional, family and physical) have been identified following a multidimensional approach (Chen et al., 2020; Garcia et al., 2018). Through empirical analyses, it has been identified that self-perception in five dimensions could be cross-cultural and occurs in subjects from Europe (Murgui et al., 2012; Tomas and Oliver, 2004) and Latin America (Garcia et al., 2011; García et al., 2018), the United States (Garcia et al., 2013) and, recently, China (Chen et al., 2020). The global or unidimensional approach (self-esteem) allows predicting important variations in adjustment and psychosocial competence, although to analyze more specific aspects of psychosocial functioning the multidimensional approach (i.e., self-concept) can offer more specific predictions (Chen et al., 2020; Garcia et al., 2018; Marsh and O'Mara, 2008). In this case, research conducted by Murgui et al. (2016) and Revuelta et al. (2016) point out that regular physical exercise brings benefits in all dimensions of self-concept, these being more noticeable in the physical self-concept. Likewise, the study carried out by Melguizo-Ibáñez et al. (2022) affirms that an adequate physical self-concept helps to increase motivation levels towards physical-sports practice and therefore to increase levels of physical activ-

Table 2
Analysis of the study sample (continued)

Authors (Year)	Objetive	Variables	Instruments	Conclussions
Brunet et al. (2012)	To study the relationship between physical discrepancies and physical activity behaviour. To examine whether motivational regulations mediate these associations by using self-discrepancy and organismic integration as frames of reference.	Physical Discrepancies	PSDQ	Physical activity levels were lower when the discrepancy was such that the ideal self or the due self was higher than the actual self.
		Physical Activity	LTEQ	
		Sociodemographic Variables	Socio-demographic Questionnaire	
		Motivational Regulation	BREQ-2	

Note. Perceived Motivational Climate in Sport Questionnaire 2 (PMCSQ-2); Beck Anxiety Inventory (BAI); Five-Factor Self-Concept Questionnaire (AF-5); Twenty Statement Test (TST); State Social Physique Anxiety Scale (S-SPAS); Weight and Body-Related Shame Scale (WBR-S); International Physical Activity Questionnaire-Short Form (IPAQ-SF); Behaviroral Regulation in Exercise Questionnaire (BREQ-2; BREQ-3), Depression, Anxiety and Stress Scale-21 (DASS-21); Intolerance of Uncertainty Scale-Revised (IUS-R); Short Form Health Survey-12 (SF-12); Body Dissatisfaction subscale of the Eating Disorders Inventory-3 (BD); Pittsburgh Sleep Quality Index (PSQI); Exercise-Avoidance Motivation Scale (EAMS); Straightforward Social Interaction Anxiety Scale (SIAS-S); Stigmatizing Situations Inventory (SSI); Self-Rating Depression Scale (SDS); International Physical Activity Questionnaire (IPAQ); Situational Motivation Scale (SIMS); Beck Depression Inventory-II (BDI-II); State-Trait Anxiety Inventory (STAI); Stress and Coping Inventory (SCI); Global Physical Activity Questionnaire (GPAQ); World Health Organization Quality of Life (WHOQOL-BREF); Eating Disorder Inventory (EDI-2); Body and Fitness-Related Self-Conscious Emotions (BSE-FIT); Body and Appearance-Related Self-Conscious Emotions Scale (BASES); Sport Commitment Scale (SCS); Sport Anxiety Scale-2 (SAS-2); Competitive State Anxiety Inventory (CSAI; CSAI-2); Positive Metacognitions and Positive Meta-Emotions Questionnaire (PMCEQ); Caring Climate Scale (CCS); Perceived Motivational Climate in Sport Questionnaire (PMCSQ); Motivated Strategies for Learning Questionnaire (MSLQ); Godin-Shephard Leisure Time Exercise Questionnaire (GLTEQ); Inventory of Statements about Self-Injury (ISAS); Exercise Motivation Inventory-2 (EMI-2); elf-presentation Motives for Physical Activity Questionnaire (SMPAQ); Intrinsic Motivation Inventory (IMI); Parent-Initiated Motivational Climate Questionnaire-2 (PIMCQ-2); Motivational Climate Sport Youth Scale (MCSYS); Self Reporting Questionnaire (SRQ); Social Desirability Questionnaire (WSDQ); Basic Psychological Needs in Exercise Scale (BPNES); Caring Climate Scale (CCS); Physique Anxiety Scale (PAS); Perceived Locus of Casuality Scale (PLCS); Sport Enjoyment Scale (SES); Physical Activity Questionnaire for Adolescents (PAQ-A); Leisure-Time Exercise Questionnaire (LTEQ);

ity. This helps to improve people's physical and mental health, as it has been shown that an active lifestyle reduces the levels of anxiety and stress generated in day-to-day life (Zataloudi and Christopoulos, 2021)

Taking into account all that has been developed, the following research questions are proposed: Does sport motivation influence the channelling and development of anxiety, and does sport motivation have a positive impact on all dimensions of self-concept? Does physical activity have benefits for emotional well-being? Can motivation act positively or negatively on an active lifestyle? In what language is most of the research written? Which country provides the most research on the subject under study?

Finally, this study aims to conduct a systematic review of the scientific literature analysing the effects of sport-oriented motivation on physical activity, anxiety and self-concept during the las ten years.

Material and methods

In order to follow the correct integrity and organisation of the present research, the criteria of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement were followed (Hutton et al., 2015; Hutton et al., 2016). The articles that have been selected to form the basis of the the study, have been coded by the authors of the study, in order to check the reliability of the of the study, in order to check the reliability of the coding. After comparison of the articles, a degree of agreement of 80% was reached. The percentage of the degree of was obtained by dividing the number of matches by the total number of number of matches by the total number of categories, finally multiplying it by 100.

Search procedure and strategies

The systematic review was conducted in February 2022 and focused on studies examining the influence of sport motivation on anxiety and self-concept. The Web of Science (WOS) and SCOPUS databases were used as the main search engines. The time range was delimited between 2012 and 2022. In this case, the search equation used was as described below: "*Motivation**" and "*Anxiety*" and "*Physical Activity*" for both databases.

All research published in Spanish or English was considered, considering that both languages are the most widespread in the scientific field, which resulted in an initial sample of 408 studies for analysis belonging to the WOS database. In order to make the research topic even more specific, the following research areas were selected: "Sport Sciences", "Education & Educational Research", "Multidisciplinary Psychology" and "Psychology". After applying the aforementioned inclusion criteria, the WOS sample consisted of 80 articles. Subsequently, the following inclusion criteria were defined: a) To be a quantitative research article, b) longitudinal or cross-sectional research and c) that the sample was made up of students from any educational stage.

The SCOPUS search with the introduction of the previously mentioned keywords yielded an initial search of 424. After the application of the subject area criteria, reduced to "Social Sciences" and "Psychology", the number was reduced to 117. A screening process was then initiated based on the type of document (articles only) and language (Spanish and English for the reasons already mentioned), which reduced the sample to 94 articles. In order to define the final study sample, the same inclusion criteria established for WOS were used to ensure consistency in the review.

The title and abstract of the sample were then read critically to confirm that the selected research met the inclusion criteria. The full texts of the research were then read to confirm that the articles met the objectives of this study. A total of 165 articles were eliminated due to mismatch in coding by the independent reviewers or because the studies did not meet the established methodological and conceptual criteria. This left a final sample of 19 scientific articles that made up the sample of the present study.

Results

Data from studies selected for the systematic review

For table 1, the following details were recorded: 1) Authors and year of publication; 2) Country; 3) Design; 4) Sample; 5) Gender of participants; 6) Population. In this case, most of the articles present a cross-sectional design (n = 13). Likewise, looking at the distribution of the sample according to country of origin, it can be seen that the country that contributes the most is the United States (n = 8), followed by Canada (n = 4) and Spain (n = 3). Focusing attention on the distribution according to educational stage, it can be seen that most of the research has been carried out at university level (n = 10), followed by secondary education (n = 8) and elementary education (n = 1). In terms of gender, it can be seen that in the majority of the selected articles the number of women (n = 13) is higher than the number of men. The total number of participants who took part in the selected studies totalled 5749. Finally, looking at the design of most of the research, it can be observed that most of them are cross-sectional (n = 14), followed by longitudinal research (n = 3) and concluding with randomised controlled intervention research (n = 2).

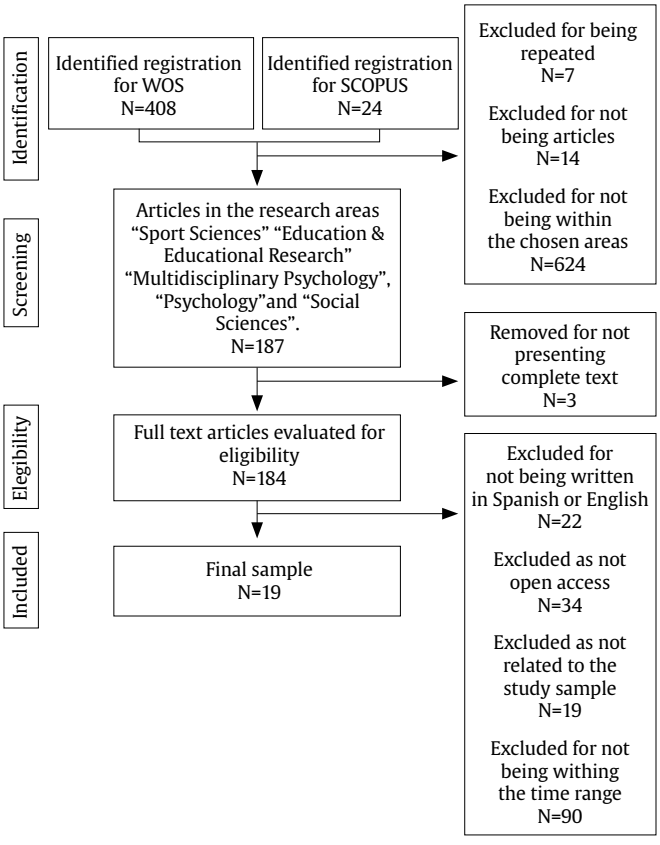


Figure 1
Flowchart of the systematic selection of articles for inclusion in the study.

Table 3
Distribution of the sample according to stage of education

Population	Percentage
University education	47.3% (n = 9)
Secondary education	42.1% (n = 8)
Elementary education	10.6% (n = 2)
Total	100% (n = 19)

Table 4
Distribution of the sample according to country of origin

Population	Percentage
USA	42.1% (n = 8)
Canada	21% (n = 4)
Spain	15.8% (n = 3)
Australia	10.5% (n = 2)
Germany	5.3% (n = 1)
Italy	5.3% (n = 1)
Total	100% (n = 19)

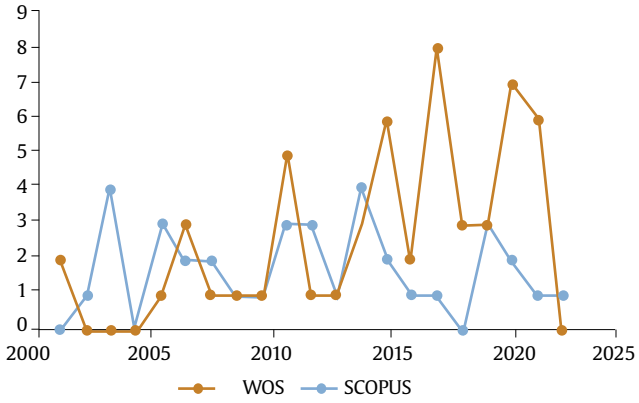
Data from the studies selected for the systematic review.

Table 5
Scientific developments in the subject matter

Age Range	Web of Science	Scopus	Language
2002-2007	10	6	Spanish: 1 English: 14
2008-2013	11	10	Spanish: 0 English: 19
2014-2019	11	25	Spanish:1 English:33
2020-2022	4	13	Spanish:0 English:17
Total	36	54	Spanish: 2 English:73

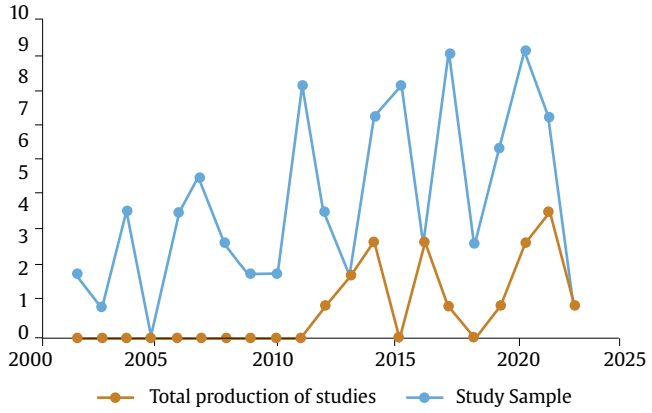
Table 3 shows the distribution of the articles analysed according to the target population. In this case, more than half of the studies are aimed at the university population (47.3%; n = 9). Subsequently, the educational stage with the most studies is secondary education (42.1%; n = 8). Finally, the least studies have been carried out in elementary education (10.6%; n = 2). Table 4 shows the distribution of the selected articles according to country of origin. In this case, it can be seen that most of the studies belong to the American continent (63.1%; n = 12). Next, Spain is the country that contributes the most research (15.8%; n = 3), followed by Australia (10.5%; n = 2), Germany (5.3%; n = 1) and Italy (5.3%; n = 1). Table 5 shows the scientific evolution of the subject matter addressed over the last few years within the areas covered. In this case, it is observed that Scopus (n = 54) handles more articles than Web of Science (n = 36). There is also a growing trend in Scopus, although in Web of Science, the scientific production in the subject area in question remains stable. Furthermore, looking at the language, it can be seen that most of the articles are written in English (n = 73), with Spanish being relegated to only two articles. The scientific production related to the topic addressed in this research reflects an increasing rise in SCOPUS, reaching the maximum hosted in 2017 (n = 8). In contrast, the maximum hosted in Web of Science (WOS) was in 2004 and 2014 (n = 4). Looking at the total scientific production related to the variables addressed in this research, an increasing trend is observed, reaching the maximum peak of articles in the years 2017 and 2021 (n = 9). Focusing attention on the body of the study, it is observed that most of the articles analysed belong to the years 2014 (n = 3), 2016 (n = 3), reaching the maximum in 2021 (n = 4).

Figure 1
Scientific evolution of the subject matter covered by years in Web of Science and Scopus



The scientific production related to the topic addressed in this research reflects an increasing rise in SCOPUS, reaching the maximum hosted in 2017 (n = 8). In contrast, the maximum hosted in Web of Science (WOS) was in 2004 and 2014 (n = 4).

Figure 2
Evolution of the total scientific production and the body of the study by years.



Looking at the total scientific production related to the variables addressed in this research, an increasing trend is observed, reaching the maximum peak of articles in the years 2017 and 2021 (n = 9). Focusing attention on the body of the study, it is observed that most of the articles analysed belong to the years 2014 (n = 3), 2016 (n = 3), reaching the maximum in 2021 (n = 4).

Discusion

The importance of sport-oriented motivation and its effects on physical and mental health has become a topic of great research interest. In this case, the present systematic review is composed of a total of 19 articles that address the variables defined above, so that the present discussion aims to compare the results obtained with those obtained in other research.

The studies analysed maintain that when the practice of physical activity is developed from an intrinsic motivation, anxiety levels are reduced. Motivation is supposed to play a key role in sport practice (Sutin et al., 2021; Vallerand et al., 1987). The researchers conducted by Wu et al. (2021) and Vallerand et al. (1987) affirm that when physical sport practice originates from an intrinsic motivation, values such as fun and enjoyment are brought into play. Also, when the practice originates intrinsically, disruptive states such as anxiety can be channelled, due to the release of neurotransmitters such as serotonin and dopamine (Kubesch, 2002; Ubago-Jiménez et al., 2020). On the contrary, when the practice of physical activity originates from extrinsic values, factors such as competition and overcoming the opponent are put into practice (Castro-Sánchez et al., 2019). Chu et al. (2021) assert that failure to achieve goals fosters stress and anxiety levels (Iglesias-Martínez et al., 2021), as well as a negative change in people's self-image (Miller and Fry, 2018; Ramírez-Granizo et al., 2020).

Anxiety can be a detrimental element in the acquisition of an active and healthy lifestyle (Sutin et al., 2021). When an activity is developed through which disruptive states or emotions are fostered, participants develop a state of nervousness through which task performance can be negatively affected (Sánchez-Romero et al., 2022). In this case, the research carried out by Ong and Chua (2021) states that when sport practice is focused on professionalisation and sport performance, the practice of physical activity becomes an element that generates anxiety and stress due to the secretion of adrenaline as a defence mechanism against such stimulus. Research by Peng and Zhang (2021) states that when sports practice originates at the professional level, emotional exhaustion takes place, which leads to regular withdrawal from physical activity on a regular basis.

To prevent young people from creating sedentary lifestyles, the subject of physical education plays a key role (Pope et al., 2021). Adolescence is supposed to be a critical period for activity, however, during this stage of development there is a decrease in physical activity time and energy expenditure (Schmidt et al., 2020), especially in females (Wu et al., 2020). The research carried out by Trigueros et al. (2020) states that physical education teachers play a key role in the creation of an active lifestyle, since depending on the motivational climate towards which they guide the development of classes, they will manage to awaken the interest of students. To this end, Claver et al. (2020) affirm that physical education classes should be oriented towards the creation of a motivational climate that favours autonomous motivation towards the practice of physical sporting activity.

Despite the various benefits of physical activity, the abandonment of sport leads to a worsening of physical fitness and mental self-image (Pulido et al., 2021). The research reviewed above affirms that regular physical exercise has benefits for cardiovascular health, mental health and well-being. In view of these results, Sáez et al. (2020) affirm that self-concept is a key element in achieving well-being. Prathiba et al. (2021) argue that people with low body image acceptance reflect higher levels of anxiety and lower levels of regular physical activity. Moreover, the research by Marfil-Carmona et al. (2021) conceptualises that there is currently an increasing rise in body dissatisfaction due to the canons of beauty that the media and social networks transmit to young people, highlighting Pollina-Pocallet et al. (2021) the importance of teaching young people to be emotionally literate and to accept themselves as they are at an early age.

Limitations and practical applications

Focusing attention on the limitations of the present research, the scope of the search should be highlighted as a limitation since only articles published in the last decade have been dealt with. Also, the time range of the search was an important limitation, as it was possible to exclude articles with a high impact at national and international level. It should also be noted that the articles analysed focus on a very specific and concrete sample, such as students at any educational stage.

In terms of practical applications, the present systematic review examines the relationships between sport motivation, anxiety,

physical self-concept and physical activity practice. At the same time, instruments and relationships between the variables described above are also collected. The results emphasise the importance of the physical education teacher, since working in the wrong way in this subject can lead to students developing a negative attitude towards it, damaging different areas of the individual. Finally, it is evident that the subject of education offers a multidisciplinary approach that can be used to offer a cross-cutting education where, through the practice of physical activity, a complete and integral education of the students can be worked on.

Conclusions

The present systematic review shows how the motivation developed towards sports practice plays a key role in the channelling of anxiety and the creation of a positive mental image.

In this case most articles show how developing sport motivation from extrinsic or intrinsic values can help to decrease or increase anxiety levels. In addition, it is also observed that the motivation developed through extrinsic values plays a key role in the abandonment of physical activity due to the frustration and worsening of the mental image generated at a professional level when the proposed objectives are not achieved.

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