

1 Prieto, J.M., & González-García, H. (2022). Precompetitive anxiety profiles in runners:
2 differences in the running motives. *Journal of American College Health*.
3 <https://doi.org/10.1080/07448481.2022.2119395>

4

5 Head Title: PRECOMPETITIVE ANXIETY PROFILES

6 Precompetitive anxiety profiles in runners: differences in the running motives

7

8 Date of submission: 04/09/2021

9 Date of acceptance: 25/08/2022

10

11 Precompetitive anxiety profiles in runners: differences in the running motives

12 Abstract

13 The study aimed to identify precompetitive anxiety profiles and analyse the impact of those
14 profiles in their reasons to adhere to running. A sample of 473 Spanish Amateur Athletes
15 participated in the study. Results revealed the emergence of three profiles: (a) a high
16 precompetitive anxiety profile characterised by high cognitive and somatic anxiety and low
17 self-confidence; (b) a precompetitive medium-low anxiety profile characterised by medium-
18 low scores in cognitive and somatic anxiety and medium self-confidence; (c) a precompetitive
19 low anxiety profile characterised by low scores in cognitive and somatic anxiety and medium
20 self-confidence. Results showed that most of the working runners, who participate in ten-
21 kilometer races, who practice three days a week, and most experienced runners, belonged to the
22 extremely low anxiety profile. In conclusion, the precompetitive low anxiety profile reported
23 the most suited outcomes which mean that is a more adaptive profile.

24 Keywords: Running, Cluster analysis, Endurance, Sport competition.

25

26

27

28 **Precompetitive anxiety profiles in runners: differences in the running motives**

29 The knowledge about the different precompetitive anxiety profiles of athletes and their
30 relationship with psychological, sociodemographic, sports and personal variables is quite useful
31 for sports psychology practitioners.¹⁻⁵ Since there is a scarcity of studies that analyse the
32 psychological profiles together and their relationship with precompetitive anxiety states in
33 runners.^{2,6,7} Subsequently, the present study is based on psychology (study about the
34 precompetitive psychological anxiety profiles of runners) and social sciences (reasons to
35 compete). Moreover, the study is grounded in a person-centred approach methodology rather
36 than follow a bivariate approach in which the extreme scores of each variable are related in
37 isolation.⁸ This means that this work follows a naturalistic pattern of how anxiety profiles may
38 be combined in athletes in precompetitive stages. In other words, the different anxiety variables
39 may co-occur in a particular situation.

40 According to Prieto⁹ "psychological variables such as anxiety in sport, influence feelings of
41 competition, considering anxiety as a variable that can act as a stimulus or as an obstacle to the
42 performance of athletes". Anxiety is part of human existence which signifies that all people feel
43 a moderate degree of it, as an adaptive response to the context or a specific situation such as
44 sports.¹⁰ Anxiety can be analysed as a personality trait, or as a consequence of the
45 environmental context that surrounds the athlete's behaviour at a specific moment (state
46 anxiety).¹¹ Anxiety as a state is susceptible to have variability in its intensity over time, being
47 relevant to the differentiation that a variety of theoretical models pose in the different
48 manifestations of anxiety.¹²

49 Following Martens et al.¹³ multidimensional theory, it may be identified three components:
50 somatic anxiety (appearance of physiological elements due to the activation of the autonomous
51 nervous system), cognitive anxiety (negative expectations about sports performance) and self-
52 confidence (degree of security that individuals have about their ability to be successful in the
53 sports). The cognitive dimension of anxiety refers to the inability and difficulty to maintain
54 attention and concentration, while the somatic dimension of anxiety refers to the perceptions of
55 bodily symptoms caused by the activation of the autonomic nervous system, such as the
56 acceleration of the nervous system, heart rate, sweating, among others.¹³ On the other hand, it
57 seems that self-confidence has a very relevant role as a modulating variable of the manifestation
58 of anxiety in the athlete.¹⁴ Self-confidence is "the conviction or degree of security that
59 individuals have about their ability to be successful in sport".¹⁵ In sporting contexts, self-
60 confidence is understood as the degree of certainty, according to past experiences, that the

61 athlete has regarding their ability to achieve success in a certain task, that is, the belief that you
62 can make a reality desired behaviour.¹⁶ Following Vealey's¹⁵ confidence model, trait confidence
63 is the degree of belief that we normally have about our ability to be successful in sport, while
64 state confidence is the confidence that we have at a particular moment about our ability to be
65 successful in sports. While the theoretical model of Bandura¹⁷ arises from cognitive theory,
66 Vealey's approach is only applicable to the Sports field.

67 On the other hand, Prieto¹⁸ highlighted that the high anxiety caused by the need to compete
68 could predict exercise dependence, especially in runners, between 35 and 45 years old, with a
69 low educational level, less sports experience, and a high Negative Anxiety to Run (ANC). This
70 term was defined by Glasser¹⁹ as the anxiety that dominates a person's life, compulsively,
71 focusing his/her life on going out for a run or competing in races, ending up making decisions
72 that affect the rest of his/her family. Smith, Wright and Winrow²⁰ observed that competitive
73 runners are more likely to exhibit symptoms of exercise dependence than non-competitive
74 runners but do not exhibit more social physique anxiety.

75 In relation to the study of the reason of motivation in runners, the study by Bataller et al.²¹
76 analysed the differences between profiles of popular asphalt and mountain runners based on
77 their socioeconomic, sports and health characteristics. Bataller et al.²¹ highlight that the
78 “typical” profile of the popular race runner would be the following:

79 Man, between 36 and 50 years old (the vital stage in which the professional career is
80 stabilised), who lives with a partner, with children, and resides in urban areas. He belongs
81 to the upper-middle class and prefers to practice alone and without a coach, having
82 previously practiced other sports (p.9).

83 Moreover, a study of Popov et al.²² and Sánchez-García et al.⁷ revealed that the reason for
84 running of athletes was coping with negative stressors. This means that running is understood
85 as a mechanism of coping with daily life issues. In addition, Sánchez-García et al.⁷ showed that
86 most of them began to practice it thanks to people close to them (60%), their outlook on life
87 (29%), their habits and responsibilities (28%) and friends (26%). Besides, in a study of
88 Summers, Machin and Sagent²⁴ the reason to run “for strain with on relationship” was chosen
89 by 34% of the athletes between 31-40%. Couple issues are common and running is a way to
90 handle them, as such this range of age deserves the attention on couple troubles.

91 Once the state of the research problem has been contextualized and the importance of the
92 aforementioned psychological variables in runners has been observed. As cited, the novelty of
93 the study is the consideration of the co-occurrence of the different factors of anxiety, rather than
94 evaluate them in isolation. This means that this approach is intended to show more practical

95 implications to practitioners, as precompetitive anxiety is measured more naturally. This
96 approach considers the multivariate experience of precompetitive anxiety rather than neglect
97 the co-existence of the different precompetitive anxiety variables. Subsequently, the study
98 aimed to identify precompetitive anxiety profiles and analyse the impact of those profiles in
99 their reasons to adhere to running. No previous hypothesis was established, due to the lack of
100 previous research based on a person-centred approach.

101 Method

102 *Participants*

103 A sample of 473 amateur Spanish runners ($Mage = 30.28$; $SD = 8.13$; 374 men and 99
104 women) participated in the study. From the total sample, 23.5% are federated athletes and
105 76.5% are not federated. Regarding employment, 30.4% are working and 69.4% are not
106 working. From the total sample, 6.6% participate in 5K races, 59.4% participate in 10K races,
107 26.6% participate in 21K races and 7.4% participated in 42K races. Concerning the number of
108 days of training, 4.7% practice one day a week, 16.9% practice two days a week, 38.9% practice
109 three days a week, 24.3% practice four days a week, 14.2% practice five days a week and 1.1%
110 practice six days a week.

111 *Measures*

112 Sociodemographic Variables. A sociodemographic questionnaire *ad hoc* was created to
113 measure the social variables of the sample. The variables that were examined are: variables of
114 sports practice, age, weight, height, gender, type of race in which they usually participate, years
115 of continuous running, average kilometres travelled per week and days trained per week. To
116 cite some examples: “Do you usually take part in 5 K runs?”, “Do you usually take part in 10
117 K runs?”, “Do you usually take part in 21 K runs?”, “Do you usually take part in 42 K runs?”,
118 “How long are you running?”, “How many days do you practice?”, etc.

119 Motives to Run in a Competition. To evaluate the motivations to run in a race, a
120 sociodemographic questionnaire by Barrios and Cardozo²⁴ was utilized. It is a scale that collects
121 different reasons (23 items) to participate in endurance races. The items were elaborated in a
122 work previously developed²⁵ based on the contributions from the Marathoners Motivation Scale
123 (MOMS) by Masters, Ogles and Jolton.²⁶ Each item is related to a psychological aspect, that
124 may be classified as the following reasons: satisfaction, physical fitness, achievement of
125 personal goals, interest in sports, social interaction, self-esteem, attraction to competition,
126 meaning of life, search for recognition, competition-rivalry and convenience. The type of scale
127 is Likert with 5 response options: nothing important (1); unimportant (2); important (3); very
128 important (4); and extremely important (5). To cite some examples of items: “I take part in this

129 *competition to feel proud of myself”, “I take part in this competition to have a more meaningful*
130 *life”, etc.*

131 Precompetitive Anxiety. To assess anxiety prior to competition, the CSAI-2R by Andrade et
132 al.²⁷ was used, which is a Spanish version of the CSAI-2 by Martens et al.²⁸ The resulting
133 adapted form consists of 18 items distributed in 3 subscales or dimensions: 1) State somatic
134 anxiety, 2) State cognitive anxiety and 3) State self-confidence. In this, as in the other
135 questionnaires, the responses to the items are reflected on a Likert-type scale with a response
136 range from 1 to 4, in which 1 corresponds to totally disagree and 4 to totally agree with the
137 formulation of the question. The Cronbach alphas obtained in the present study were suitable:
138 .72 somatic anxiety, .70 self-confidence and .70 cognitive anxiety.

139 *Procedure*

140 The research was carried out following international ethical guidelines and anonymity was
141 preserved. The participants were popular runners which were invited to participate when they
142 were picking up the bib the days before at the race, or on the day of the race. It was explained
143 to them that the purpose of this study was to provide information that describes their reasons
144 for running and their psychological state in their role as popular runners. Particularly, it was
145 explained the study and the characteristics and form of filling in the psychological
146 questionnaires. Moreover, it was ensured to participants in the informed consent that the
147 participation was anonymous and voluntary, the study purposes and the explanation to complete
148 each questionnaire.

149 *Data Analyses*

150 The SPSS 20 was the program used to compute the analyses. First, the data were filtered for
151 multivariate outliers and multicollinearity of scales. Second, to enhance the stability and
152 confidence in the cluster groups, a two-step approach in which were included hierarchical and
153 non-hierarchical cluster analyses were performed using standardized CSAI scores.²⁹ Then, to
154 identify the number of clusters (pre-competitive anxiety) a hierarchical cluster analysis (Ward's
155 linkage method with squared Euclidian distance) was conducted. Afterwards, a k means cluster
156 analysis was performed using the most appropriate cluster solution identified in stage one.
157 Third, to examine cluster group differences in motives to run, chi-square tests were conducted
158 to see if there were differences across clusters. The Partial eta squared (η^2) was assessed for
159 providing an index of effect size. Finally, to ensure that there were no clusters confounds in
160 demographic variables, a series of chi-square were conducted with qualitative variables: Age,
161 gender, height, weight, kilometres per week, the habit of competition, time in running and level
162 of competition.

163

164

Results

165 *Precompetitive Anxiety Profiles*

166 Considering the dendrogram and the agglomeration schedule coefficient, three clusters were
167 the most adequate solution. Besides, non-hierarchical cluster analysis reported evidence for the
168 hierarchical one due to similar clusters were obtained for the two clustering methods. The
169 clusters in these analyses must be elected according to maximize the differences across
170 participants, to group the sample into different profiles. MANOVA analysis revealed significant
171 multivariate effect of cluster membership on Precompetitive Anxiety (Wilk's Lambda = .12; F
172 (6.00) = 280.81; $p < .001$; $\eta^2 = .64$). Subsequently, ANOVAs analyses of variance showed that
173 the three clusters were significantly different ($p < .01$) on all anxiety variables, which provided
174 an excellent indicator of tenability for the cluster solution (Table 1). According to the outcomes
175 obtained in the profiles, the descriptive labels for clusters are: (a) a high anxiety profile
176 characterised by high cognitive anxiety and somatic anxiety and low self-confidence; (b) a
177 medium-low anxiety profile characterised by medium-low scores in cognitive anxiety and
178 somatic anxiety and medium self-confidence; (c) a low anxiety profile characterised by low
179 scores in cognitive anxiety and somatic anxiety and medium self-confidence.

180

181 *Cluster Group Differences on Motives to Run*

182 Results of chi square tests showed significant differences in the motives: "I take part on this
183 competition to feel proud of myself" ($\chi^2(3) = 17.69$; $p < .024$), "to feel surer of myself" ($\chi^2(3)$
184 = 27.00; $p < .001$), "to have a more meaningful life" ($\chi^2(3) = 44.96$; $p < .001$), "to have
185 something to do in my free time" ($\chi^2(3) = 20.81$; $p < .001$), "to show my interest in sports" (χ^2
186 (3) = 31.34; $p < .001$), "to feel appealed by sports" ($\chi^2(3) = 23.93$; $p < .001$), "to enjoy during
187 competition" ($\chi^2(3) = 34.46$; $p < .001$), "to feel part of the group of runners" ($\chi^2(3) = 22.36$; p
188 < .001), "For the attraction of competitions" ($\chi^2(3) = 19.83$; $p < .001$), "For the prestige that
189 has the competition" ($\chi^2(3) = 32.54$; $p < .001$), "For the desire to get a material stimulus" (χ^2
190 (3) = 53.59; $p < .001$), "To be selected to represent my country" ($\chi^2(3) = 78.02$; $p < .001$), "To
191 be part of my preparation for another sport" ($\chi^2(3) = 63.29$; $p < .001$), "To be part of my
192 preparation for the defence" ($\chi^2(3) = 49.86$; $p < .001$), and "To test my physical condition" (χ^2
193 (3) = 27.73; $p < .001$) (Table 2).

194

195 *Cluster Group Differences on Demographic Variables*

196 Results of chi-square tests showed significant differences in working athletes ($\chi^2(3) = 9.48$;
197 $p < .01$), the type of races ($\chi^2(4) = 21.99$; $p < .01$), the kilometres per week ($\chi^2(8) = 39.18$; $p <$
198 $.01$), the time spent per week ($\chi^2(6) = 23.02$; $p < .01$) and the experience in running ($\chi^2(5) =$
199 32.34 ; $p < .01$). Particularly, most working athletes, ten kilometres runners, athletes that practice
200 three days per week and the most experienced runners pertained to the extremely low anxiety
201 profile. Also, in the kilometres per week, the higher number of athletes run in 10 kilometres
202 races and were into the low anxiety profile. However, there were no significant differences in
203 the variables: gender, age, federated and non-federated athletes.

204

205

Discussion

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

The study aimed to identify precompetitive anxiety profiles and analyse the impact of those profiles on their reasons to adhere to running. The results of the study show three anxiety profiles for a sample of 473 amateur runners: (a) a high anxiety profile, characterised by high cognitive and somatic anxiety and low self-confidence; (b) a medium-low anxiety profile, characterised by medium-low scores in cognitive and somatic anxiety and medium self-confidence; (c) a low anxiety profile, characterized by low scores in cognitive and somatic anxiety and medium self-confidence. These outcomes confirm the co-existence of the different variables of precompetitive anxiety in a particular situation. In other words, the experience of precompetitive anxiety follows a multivariate pattern of the aforementioned variables rather than experiencing precompetitive anxiety in isolation. Thus, the examination of precompetitive anxiety in runners makes sense from a multivariate approach.

In addition, an intermediate profile of medium-low anxiety was determined, characterised by medium-low scores in cognitive and somatic anxiety and medium self-confidence. Perhaps for runners with these reasons for sports practice it is relevant to have this intermediate profile of medium-low anxiety. The study by Prieto et al.³⁰ also established profiles in runners, although relating anxiety with the risk of sports injury. The authors confirmed that it is necessary to have an optimal level of anxiety and an appropriate attentional capacity to the sports context to minimize the risk of injury in sports practice, highlighting that the scores that represent an inadequate adaptation, by excess or by default, increase the probability of the athlete to be injured. Perhaps, the reasons that show a high percentage in profiles (a) and (c) of the present study, with extremely high and low anxiety, respectively, are inappropriate reasons for practicing sports.

The results showed that most of the working runners, who participate in ten-kilometer races, who practice three days a week, and the most experienced runners, belong to the extremely low

230 anxiety profile. Likewise, Prieto⁹ following a bivariate approach observed that the runners who
231 worked obtained significantly lower scores in cognitive anxiety compared to those who did not
232 work. On the other hand, Prieto³¹, showed that runners who usually participate in 10K races
233 also had less somatic anxiety. Regarding the days of training per week, the work of Ruiz-Juan
234 et al.³² highlights that the fact of training more frequently, even though it may increase their
235 somatic anxiety, significantly increases their feeling of being adequately prepared for all
236 runners to compete and, consequently, their self-confidence. Concerning the sports experience,
237 the study by Sancho and Ruiz-Juan³² stands out, where veteran athletes showed high levels of
238 self-confidence. In relation to this research, if we take into account that veteran athletes are the
239 ones with the greatest sporting experience, we could say that these results are in part consistent
240 with the results of the present research, with older and more experienced runners showing levels
241 average self-confidence. According to the results of the study by Prieto³¹, runners with a
242 sporting experience of less than 1 year and who trained for 1-2 days/week had greater cognitive
243 and somatic anxiety than those who had been running for more years and training more days,
244 probably. This is due to the maturity of the age of this population, veteran runners but without
245 previous experience in the competition,⁴ or perhaps due to the few years they have been
246 practicing, the reduced number of times they have competed, little concern or not having been
247 able to train more days a week to prepare for a competition, do not allow them to have enough
248 self-confidence not to generate anxiety. Thus, it was partially confirmed the results stated by
249 previous research that followed a bivariate approach.

250 Regarding gender differences in profiles, in the present study there were no significant
251 differences. Likewise, Pulido et al.³³, did not find differences in the variables motivation and
252 self-confidence according to sex, nor in the variables motivation and anxiety in the comparison
253 between both groups. In contrast, Pulido et al.³³ found significant differences in the comparison
254 between men and women in anxiety, resulting in higher somatic anxiety in women than in men,
255 perceiving the symptoms that cause their physical state, heart rate, sweating, or activation of
256 the nervous system in a more pronounced way. The authors indicate that these results could
257 condition judokas in their training, preparation and competition, so it would be advisable to
258 control the somatic anxiety variable in athletes. On the other hand, in the study by Ruiz-Juan,
259 Zarauz and Flores-Allende (2016), men who did fewer kilometres per week increased their self-
260 confidence. On the other hand, in the study by Ruiz-Juan et al.³² with roadrunners, both men
261 and women obtained moderate levels of cognitive and somatic anxiety. On the other hand, in
262 the work of Goig and Goig³⁵ the relationship between participation in the race was analysed
263 with variables such as age, educational level, experience acquired and membership in an

264 athletics club. However, in this work there were no significant differences in the variables: sex,
265 age, federated and non-federated athletes. Likewise, in the study by Ruiz-Juan et al.³² there
266 were also no significant differences between the sexes in any of the dimensions of anxiety or
267 self-confidence. Thus, the results did not report significant differences between sexes which
268 follow several previous studies but contradict other previous works that stated the opposite.
269 Nevertheless, as previously stated, the study follows a person-centred approach rather than
270 follow a bivariate approach as the previous studies.

271 The profile (b) reported the highest number of athletes interested in: “to feel surer of myself”
272 and “to have something to do in my free time”. These outcomes reveal that profile (b) is more
273 prone to take part in races for self-growth motives related to self-concept and to have something
274 to do in the spare time.^{35,36} Thus, the combination of self-concept improvement and have
275 something to do in spare time are both motives related to profile (b).

276 Moreover, profile (b) reported the highest number of athletes that marked as an important
277 motive: “For the prestige that has the competition”. Also, “To test my physical condition” in
278 which the profile (b) reported the highest number of athletes that marked the option “Very
279 important”. Particularly, the prestige that has the competition could be a factor that may
280 modulate the participation of athletes in competition. This means that athletes may tend to enrol
281 more in challenging races, which may have an internal connotation of motivation.^{22,37} Besides,
282 the motive “to test my physical condition” denotes that people from this profile could be
283 practicing another main sport and they take running as a second sport. As such, this profile may
284 have less precompetitive anxiety due to they take this competition as a way to train for their
285 main sport. However, profile (c) reported the highest number of athletes that marked the option
286 “it is not important” in the following motives: “To be part of my preparation for another sport”
287 and “To be part of my preparation for the defence”. On the contrary, profile (c) may not be
288 taking running as a second sport. Thus, the less pressure they have in the competition, maybe
289 turning into less interest in the previously cited motives and they are considering other more
290 intrinsic motives. Particularly, profile (c) reported the highest number of athletes interested in
291 the motives: “I take part in this competition to feel proud of myself”, “to have a more
292 meaningful life” and “to feel appealed by sports”. Also, profile (c) reported the highest number
293 of athletes that felt the reason of importance: “For the attraction of competitions”. Regarding
294 the previous rationale, profile (c) is considering its motives to compete from a more intrinsic
295 perspective which is related to more intrinsic motivation. This type of motivation has been
296 revealed as saner from a health perspective and it is linked with low precompetitive anxiety

297 levels, which may explain the outcomes obtained.³⁸ Thus, profile (c) may be revealing the
298 interest in most intrinsic reasons which may be leading to those lower precompetitive anxiety.

299 Moreover, profiles (b) and (c) reported significant differences in the motives: “For the desire
300 to get a material stimulus” and “To be selected to represent my country” in which the profile
301 (b) and (c) reported the highest number of athletes that marked the option “it is not important”.
302 This means those profiles with less precompetitive anxiety might be more prone to have fewer
303 motives related to extrinsic stimulus and represent their country in a competition. This makes
304 sense from the perspective that those profiles have less responsibility for their performance and
305 they just want to enjoy their participation in the competition.^{22,37} As such, the profiles (b) and
306 (c) are less related to the aforementioned extrinsic motives to take part in the competition.

307 Limitations

308 It should be noted that the variables were measured days before or on the day of the
309 competition. This is considered a limitation according to Parry et al.³⁹, because somatic anxiety
310 levels increase significantly before the competition. Moreover, the utilisation of self-report
311 measures may turn out to be a limitation (such as social desirability, acquiescence, response
312 randomly, memory biases, etc). Nevertheless, the measures taken were the most suitable to not
313 interfere with the warm routines of athletes and their precompetitive processes. Moreover, the
314 cultural aspect may be a factor that could hinder the generability of the results as previously
315 addressed by a previous study in runners.⁵

316 Prospective and future research lines

317 The prospective in the study of the psychological profiles of athletes is quite wide, it is
318 recommended in future works to use coping strategies or psychological skills as possible
319 moderators of anxiety. Morillo et al.⁴⁰ observed in a group of beach handball players
320 relationships between the sports psychological profile with anxiety, cognitive and somatic state
321 and self-confidence, with positive and negative coping control being one of the main predictors
322 of anxiety and confidence. The correlation analyses of the study by Reigal-Garrido et al.⁴¹
323 indicated a notable relationship between the studied constructs, confirming the positive
324 association between different psychological abilities and a lower level of somatic and cognitive
325 competitive anxiety, both in triathlon and in other sports modalities. Along the same lines, Dias
326 et al.⁴² consider that the anxiety developed by athletes is closely linked to coping strategies,
327 pointing out the effectiveness of those focused on actively solving the problem.

328 Conclusions

329 In conclusion, the results found in the present work suggest the importance of evaluating
330 different psychological variables of athletes under different profiles, to adequately diagnose the

331 states of anxiety developed by athletes and their confidence to face the competition. For this
332 reason, the results of this research could help professionals who work with runners to better
333 understand the psychological-sports profile of their runners in order to investigate their possible
334 implications on cognitive or somatic anxiety. In this way, psychological strengths or
335 weaknesses could be detected that makes it possible to establish action strategies. In addition,
336 it should be highlighted that profile (c) reported the best outcomes in terms of precompetitive
337 anxiety and the motives to compete in running were the most intrinsic among others. These
338 results mean that this profile is more adaptive and could have a positive implication in health
339 and prevent sports dropout.

340 Funding

341 The authors did not receive financial support for the research.

342

343

344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377

References

1. González-García H, Martinent G. Perceived anger profiles in table tennis players: Relationship with burnout and coping. *Psychol Sport Exerc.* 2020;50:101743. doi:10.1016/j.psychsport.2020.101743
2. Martinent G, Ferrand C. A cluster analysis of precompetitive anxiety: Relationship with perfectionism and trait anxiety. *Pers Individ Dif.* 2007;43(7):1676-1686. doi:10.1016/j.paid.2007.05.005
3. Smith D, Wright C, Winrow D. Exercise dependence and social physique anxiety in competitive and non-competitive runners. *Int J Sport Exerc Psychol.* 2010;8(1):61-69. doi:10.1080/1612197x.2010.9671934
4. Zarauz-Sancho A, Ruiz-Juan F. Determinants of motivation in veteran Spanish athletes. *Rev Latinoam Psicol.* 2015;47(1):34-42. doi:10.1016/s0120-0534(15)30004-2
5. Zarauz A, Ruiz-Juan F, Arbinaga F, Jaenes JC, Flores-Allende G. Predictor model for running motivations: analysis of Spanish vs. Mexican route runners. *Univ. Psychol.* 2015;14(2): 659–674. doi:10.11144/Javeriana.upsy14-2.mpmc
6. Popov S, Sokić J, Stupar D. Relations between motivation for long-distance running and emotional well-being. *Psihologija*, 2018;1–16. doi:10.2298/PSI180605032P.
7. Sánchez-García LM, Sebastiá-Amat S, Roig RI. Reasons for trail running practicing in pre-absolute categories and its influence on their personal development. *J. Phys. Educ. Sport.* 2019;4: 2487-2492. doi:10.7752/jpes.2019.04377
8. Tudor K. Person-centred approaches in the context of emotions. *Pers. -Centered Exp. Psychother.* 2021;20(2): 103-118. doi 10.1080/14779757.2020.1846601
9. Prieto JM. Sensations and anxiety experienced by popular runners and their relationship with personal variables. *Trances*, 2019;11(2): 305-324.
10. Ford JL, Ildefonso K, Jones ML, Arvinen-Barrow M. Sport-related anxiety: current insights. *Open Access J Sports Med.* 2017;8:205-212. doi:10.2147/OAJSM.S125845
11. Martens R. *Sport competition anxiety test*. Champaign, Ill: Human Kinetics. 1977.
12. Raymond JG, Steele JD, Seriès P. Modeling Trait Anxiety: From Computational Processes to Personality. *Front Psychiatry.* 2017;8:1. doi:10.3389/fpsy.2017.00001
13. Martens R, Vealey RS, Burton D. *Competitive Anxiety in Sport*. Champaign, Ill: Human Kinetics. 1990.
14. Tomé-Lourido D, Arce C, Ponte D. The relationship between competitive state anxiety, self-confidence and attentional control in athletes. *Rev. Psicol. Deporte.* 2019;28(2): 143–150.

- 378 15. Vealey R. Conceptualización de la confianza deportiva y orientación competitiva:
379 investigación preliminar y desarrollo de instrumentos. *Rev. Psicol. Deporte*. 1986;8:
380 221-246.
- 381 16. Dosis J. *Psychology of Physical Activity and Sport*. Madrid: McGraw-Hill. 2004.
- 382 17. Bandura A. Self-efficacy: a review applied to diverse areas of psychology. *Revisión*
383 *Psicológica*, 1977;84.
- 384 18. Prieto JM. Runnorexia: a review of physical exercise addiction in runners. *Retos*,
385 2022;43: 223-232.
- 386 19. Glasser W. *Positive addiction*. New York, Estados Unidos: Harper y Row. 1976.
- 387 20. Smith D, Wright C, Winrow D. Exercise dependence and social physique anxiety in
388 competitive and non-competitive runners. *Int J Sport Exerc Psychol*. 2010;8:1: 61-69.
389 doi 10.1080/1612197X.2010.9671934
- 390 21. Bataller AV, Muñío CM, Trigo E, Arque IA. *Comparison of profiles of popular racing*
391 *runners and trail runners*. XIII Congreso Internacional de la asociación española de
392 investigación social aplicada al deporte (AEISAD). Valencia. 2014.
- 393 22. Popov S, Sokic J, Stupar D. Relations between motivation for long-distance running
394 and emotional well-being. *Psihologija*. 2019;52(2):139-154.
395 doi:10.2298/psi180605032p
- 396 23. Summers J, Machin V, Sargent G. Psychosocial factors related to marathon running. *J.*
397 *Sport Psychol*. 1983;5(3): 314-331. doi:10.1123/jsp.5.3.314
- 398 24. Barrios R, Cardozo L. Motivation to compete in popular Cuban runners.
399 *EFDeportes.com, Revista Digital*, 2002;8(47).
- 400 25. Barrios R. Motivation towards the practice of physical exercise in cuban runners.
401 *EFDeportes.com, Revista Digital*, 2001;6(31).
- 402 26. Masters KS, Ogles BM, Jolton JA. The development of an instrument to measure
403 motivation for marathon running: The Motivation of Marathoners Scales (MOMS). *Res.*
404 *Q. Exerc. Sport*. 1993;64: 134-143
- 405 27. Andrade EM, Lois G, Arce C. Psychometric properties of the Spanish version of the
406 Revised Competitive State Anxiety Inventory-2 with athletes. *Psicothema*, 2007;19(1):
407 150-155.
- 408 28. Martens R, Burton D, Vealey RS, Bump LA, Smith DE. *Development and validation of*
409 *the Competitive State Anxiety Inventory-2*. 1990. Champaign, Ill: Human Kinetics.
410 1990.

- 411 29. Hair JF, Black WC, Babin BJ, Anderson RE. *Multivariate data analysis* (7th ed.).
412 Englewood Cliffs, NJ: Prentice Hall. 2010
- 413 30. Prieto JM, Palmeira AL, Olmedilla A. Competitive anxiety, competitiveness and
414 vulnerability to sports injury: risk profiles. *Rev. Iberoam. Psicol. Ejerc. Deporte.*
415 2015;10(2): 293-300.
- 416 31. Prieto JM. Sport experience, anxiety and motivation in popular runners. *Cuad. Psicol.*
417 *Deporte.* 2017;17(1): 51-58.
- 418 32. Ruiz-Juan F, Sancho AZ, Flores-Allende G. Predictors of precompetitive anxiety:
419 Differential aspects in runners in route. *Univ. Psychol.* 2015;14(3): 1021-1031.
420 doi:10.11144/Javeriana.upsy14-3.vpap
- 421 33. Pulido S, Fuentes JP, de la Vega R. Motivation, self-confidence and anxiety in judo: sex
422 and competitive level. *Rev. Int. Med. Cienc. Act. Fis. Deporte.* 2021;21(82): 319-335.
423 doi:10.15366/rimcafd2021.82.008
- 424 34. Goig RL, Goig DL. Reasons for participating in long distance races. A study with
425 amateur runners. *Cult. Cienc. y Deporte.* 2006;2(4): 33-40.
- 426 35. Lindell-Postigo D, Zurita-Ortega F, Ortiz-Franco M, González-Valero G. Cross-
427 sectional study of self-concept and gender in relation to physical activity and martial
428 arts in Spanish adolescents during the covid-19 lockdown. *Educ. Sci.* 2020;10(8): 210.
429 <https://doi.org/10.3390/educsci10080210>
- 430 36. Olmedilla A, Ortega Toro E, Abenza L. Self-concept, sport, and physical activity
431 practice in university students. *J. Hum. Sport.* 2016;11(4): 415-425.
432 doi:10.14198/jhse.2016.114.02
- 433 37. Kilpatrick M, Hebert E, Bartholomew DK. College student motivation for physical
434 activity: Differentiating men's and women's motives for sport participation and
435 exercise. *J. Am. Coll. Health.* 2005;54(2): 87-94. doi:10.3200/jach.54.2.87-94
- 436 38. Almagro BJ, Sáenz-López P, Fierro-Suero S, Conde C. Perceived performance, intrinsic
437 motivation and adherence in athletes. *Int. J. Environ. Res. Public Health.* 2020;17(24):
438 9441. doi:10.3390/ijerph17249441
- 439 39. Parry D, Chinnasamy C, Papadopoulou E, Noakes T, Micklewright D. Cognition and
440 performance: anxiety, mood and perceived exertion among Ironman triathletes. *Br J*
441 *Sports Med.* 2010;45(14):1088-1094. doi:10.1136/bjism.2010.072637

- 442 40. Morillo JP, Reigal RE, Hernández-Mendo A, Montaña A, Morales-Sánchez V.
443 Decision-making by handball referees: design of an ad hoc observation instrument and
444 polar coordinate analysis. *Front. Psychol.* 2017;8: 1842. doi:10.3389/fpsyg.2017.01842
- 445 41. Reigal-Garrido RE, Delgado J, López Cazorla R, Hernández-Mendo A. Psychological
446 sport profile and competitive state anxiety in triathletes. *Rev. Psicol. Deporte.*
447 2018;27(2): 125-132.
- 448 42. Dias C, Cruz JF, Fonseca AM. The relationship between multidimensional competitive
449 anxiety, cognitive threat appraisal, and coping strategies: A multi-sport study. *Int J*
450 *Sport Exerc Psychol.* 2012;10: 52-65. doi:10.1080/1612197X.2012.645131
- 451

452

Tables

453 *Table 1. Precompetitive Anxiety Scores Across the Clusters.*

	(a) High anxiety profile (<i>n</i> = 4) <i>M</i> (<i>SD</i>)	(b) Medium- low anxiety profile (<i>n</i> = 223) <i>M</i> (<i>SD</i>)	(c) Extremely low anxiety profile (<i>n</i> = 246) <i>M</i> (<i>SD</i>)	<i>F</i>	<i>p</i>	Eta ²
Cognitive Anxiety	43 (.00)	10.30 (3.10)	7.18 (1.89)	452.49	< .01*	.65
Somatic Anxiety	22.50 (1.91)	19.95 (3.21)	11.86 (2.64)	457.90	< .01*	.66
Self-Confidence	10 (.00)	14.94 (2.54)	14.63 (3.35)	5.72	< .01*	.02

454 *Note. *p* < .01

455 Table 2. Precompetitive anxiety and the motives to participate in running competitions.

Motives	High anxiety profile (<i>n</i> = 4) <i>F</i> (%)	Medium-low anxiety profile (<i>n</i> = 223) <i>F</i> (%)	Extremely low anxiety profile (<i>n</i> = 246) <i>F</i> (%)	<i>X</i> ² (<i>p</i>)	Eta ²
<i>“I take part on this competition to feel proud of myself”</i>				17.69 (.03)*	.11
a It is not important	0%	0.63%	2.11%		
b Less important	0%	6.76%	5.49%		
c Important	0%	15.43%	13.95%		
d Very Important	0.84%	11.83%	14.58%		
e Extremely Important	0%	12.47%	15.85%		
<i>“To feel surer of myself”</i>				27.00 (.001)**	.16
a It is not important	0%	1.26%	4.22%		
b Less important	0%	8.45%	11.83%		
c Important	0%	12.89%	16.91%		
d Very Important	0.84%	14.37%	10.35%		
e Extremely Important	0%	10.14%	8.66%		
<i>“To have a more meaningful life”</i>				44.96 (.001)**	.21
a It is not important	0%	2.32%	7.61%		
b Less important	0.84%	5.70%	9.51%		
c Important	0%	15.64%	17.75%		

d Very Important	0%	15.85%	9.93%		
e Extremely Important	0%	7.61%	7.18%		
<i>“To have something to do in my free time”</i>				20.81 (.01)*	.14
a It is not important	0%	0.84%	2.32%		
b Less important	0%	3.38%	6.13%		
c Important	0%	12.47%	15.64%		
d Very Important	0.84%	12.26%	13.10%		
e Extremely Important	0%	18.18%	14.79%		
<i>“To show my interest in sports”</i>				31.34 (.001)**	.04
a It is not important	0%	2.32%	2.95%		
b Less important	0%	5.28%	6.13%		
c Important	0%	15.01%	19.23%		
d Very Important	0.84%	17.33%	9.93%		
e Extremely Important	0%	7.18%	13.74%		
<i>“To feel appealed by sports”</i>				23.93 (.01)*	.08
a It is not important	0%	2.53%	1.26%		
b Less important	0%	3.80%	5.07%		
c Important	0%	15.22%	16.91%		

d Very Important	0.84%	16.49%	12.47%		
e Extremely Important	0%	9.09%	16.27%		
<i>“To feel the pleasure of running”</i>				12.46 (.13)	.07
a It is not important	0%	0.84%	1.05%		
b Less important	0%	0.63%	1.26%		
c Important	0.63%	10.57%	8.45%		
d Very Important	0%	13.95%	15.22%		
e Extremely Important	0.21%	21.56%	26%		
<i>“To enjoy during competition”</i>				34.46 (.001)**	.10
a It is not important	0%	0.84%	2.32%		
b Less important	0%	0.42%	4.01%		
c Important	0%	8.03%	8.03%		
d Very Important	0.84%	11.62%	9.72%		
e Extremely Important	0%	25.58%	27.90%		
<i>“To encounter with other runners”</i>				12.25 (.14)	.04
a It is not important	0%	3.38%	2.95%		
b Less important	0%	5.07%	6.34%		
c Important	0%	9.51%	14.16%		
d Very Important	0.84%	18.60%	16.49%		

e Extremely Important	0%	10.57%	12.05%		
<i>“To feel part of the group of runners”</i>				22.36 (.01)**	.10
a It is not important	0%	2.95%	4.22%		
b Less important	0%	3.59%	9.72%		
c Important	0%	16.70%	14.37%		
d Very Important	0.84%	16.91%	16.06%		
e Extremely Important	0%	6.97%	7.61%		
<i>“To be watched competing by my relatives and friends”</i>				48.69 (.17)	.17
a It is not important	0%	6.55%	19.23%		
b Less important	0%	15.64%	10.78%		
c Important	0.84%	10.78%	10.78%		
d Very Important	0%	5.70%	4.86%		
e Extremely Important	0%	8.45%	6.34%		
<i>“To make them proud of me”</i>				45.55 (.14)	.15

a It is not important	0%	5.91%	18.18%		
b Less important	0%	15.43%	11.41%		
c Important	0.84%	13.10%	10.57%		
d Very Important	0%	5.07%	4.22%		
e Extremely Important	0%	5.07%	7.61%		
<hr/>					
<i>“To beat other mates”</i>				71.08 (.27)	.27
a It is not important	0%	13.53%	27.06%		
b Less important	0%	8.45%	10.57%		
c Important	0%	11.41%	5.28%		
d Very Important	0.84%	5.49%	5.49%		
e Extremely Important	0%	8.24%	3.59%		
<hr/>					
<i>“To get a better qualification than others”</i>				70.28 (.25)	.26
a It is not important	0%	10.99%	25.15%		
b Less important	0%	12.05%	11.41%		
c Important	0%	12.47%	7.61%		
d Very Important	0.84%	5.49%	3.80%		
e Extremely Important	0%	6.13%	4.01%		
<hr/>					

<i>“To fulfil my goals”</i>			13.36 (.10)	.05
a	It is not important	0%	0.63%	2.74%
b	Less important	0%	2.95%	2.53%
c	Important	0%	9.30%	10.57%
d	Very Important	0.84%	17.33%	17.54%
e	Extremely Important	0%	16.91%	18.60%
<i>“To compete against my previous achievement”</i>			15.40 (.22)	.02
a	It is not important	0%	1.05%	3.59%
b	Less important	0%	3.80%	3.38%
c	Important	0%	5.70%	9.72%
d	Very Important	0.42%	13.74%	11.20%
e	Extremely Important	0.42%	22.41%	23.67%
<i>“For the attraction of competitions”</i>			19.80 (.01)*	.10
a	It is not important	0%	2.32%	5.07%
b	Less important	0%	9.51%	10.57%
c	Important	0%	12.47%	16.06%
d	Very Important	0.84%	12.47%	10.57%

e Extremely Important	0%	10.35%	9.72%		
<i>“For the prestige that has the competition”</i>				32.57 (.001)**	.12
a It is not important	0%	2.53%	9.09%		
b Less important	0%	8.24%	9.93%		
c Important	0%	16.49%	12.26%		
d Very Important	0.84%	12.26%	12.05%		
e Extremely Important	0%	7.61%	8.66%		
<i>“For the desire to get a material stimulus”</i>				53.59 (.001)**	.20
a It is not important	0%	13.74%	28.54%		
b Less important	0%	17.54%	10.99%		
c Important	0.84%	8.87%	7.82%		
d Very Important	0%	5.70%	3.17%		
e Extremely Important	0%	1.26%	1.47%		
<i>“To be selected to represent my country”</i>				78.01 (.001)**	.16
a It is not important	0%	20.93%	38.47%		
b Less important	0.84%	11.41%	4.43%		

c Important	0%	9.09%	2.74%
d Very Important	0%	3.80%	2.53%
e Extremely Important	0%	1.90%	3.80%

“To be part of my preparation for another sport”

63.29 (.001)** .18

a It is not important	0%	8.03%	18.60%
b Less important	0.84%	4.43%	7.35%
c Important	0%	19.45%	12.89%
d Very Important	0%	12.26%	8.03%
e Extremely Important	0%	2.95%	5.07%

“To be part of my preparation for the defence”

49.86 (.001)** .21

a It is not important	0%	12.68%	26.42%
b Less important	0.84%	8.45%	6.55%
c Important	0%	14.37%	10.99%
d Very Important	0%	9.30%	6.13%
e Extremely Important	0%	2.32%	1.90%

<i>"To test my physical condition"</i>			27.73 (.002)*	.10
a It is not important	0%	0.42%	0.42%	
b Less important	0%	1.26%	4.01%	
c Important	0%	14.37%	19.23%	
d Very Important	0.84%	24.10%	17.97%	
e Extremely Important	0%	6.13%	10.35%	

456 Note. χ^2 = Chi-Square; p = significance.
 457