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Achievement goals and self-determination in adult football players: a cluster analysis

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1   **ACHIEVEMENT GOALS AND SELF-DETERMINATION IN ADULT**

2   **FOOTBALL PLAYERS – A CLUSTER ANALYSIS**

3   **Abstract**

4   To better understand the relationship between aspects of motivation and performance

5   level of adult football players, this study aimed to identify differences in motivation in

6   different motivational profiles created through hierarchical cluster analysis. The

7   participants consisted of 304 adult football players (90 professionals, 144 semi-

8   professionals, 70 amateurs, age: 25.4 ± 4.6 y). Participants completed the Task and Ego

9   Orientation in Sports Questionnaire and the Self-Regulation Questionnaire. Based on

10   the constructs of the questionnaires cluster analyses were performed. Chi-square was

11   used to determine any relationships between players and clusters. Four different clusters

12   were identified. There was no typical motivational profile for football players from

13   different competitive levels. However, the differences in all four clusters represented

14   specific characteristics in football players from the different levels of competition most

15   represented in each cluster. Cluster 1, which was the most adaptive, was not related to

16   competition level. On the other hand, professional athletes were significantly less

17   represented in the least adaptive motivational profile (Cluster 4). The results highlight

18   the complex relationship between competition and sporting motivation. Identifying the

19   motivational profile characteristics of football players who can reach higher competitive

20   levels presents itself as a future research opportunity.

21

22   Key words: motivation, soccer, adults, sport

23

Introduction

Motivation plays a fundamental role in sports as it influences why and how athletes engage in the activities they choose, affecting the quality of their engagement and ultimately their performance (Chin, Khoo, & Low, 2012; Olmedilla, Ortega, Andreu, & Ortín, 2010; Shah & Gardner, 2008). Self-determination theory (Deci & Ryan, 1985) and the achievement goal theory (Nicholls, 1989) are two of the most common theoretical approaches for studying achievement motivation in sport and physical activity (Fenton, Duda, & Barrett, 2016; Zuber, Zibung, & Conzelmann, 2015).

According to achievement goal theory, there are two different goal orientations: (1) Ego Orientation – focusing on displaying one's superiority to other people with the aim of demonstrating competence in relation to their peers, and (2) Task Orientation – the person is more likely to define success or competence in terms of mastery or task improvement (Nicholls, 1989). Since these are orthogonal concepts, it is possible for individuals to be oriented to both of them (Cumming, Hall, Harwood, & Gammage, 2002; Lochbaum, Çetinkalp, Graham, Wright & Zazo, 2016; Wang, Liu, Sun, Lim, & Chatzisarantis, 2010). An extensive quantitative review in competitive sport (including football) of the Task and Ego Orientations in Sport Questionnaire (TEOSQ) and Perceptions of Success Questionnaire (POSQ) has been published by Lochbaum et al. (2016). Analyses using different moderator variables (e.g., sex, sport level, sport type and collective/individualistic countries) provided important results and different research/practical directions that allow researchers to advance the study of this specific area. However, the synthesis of the 260 studies that met the inclusion criteria highlighted that the two questionnaires did not agree across a number of tested hypotheses. Thus, a second quantitative review (Louchbaum, Zazo, Çetinkalp, Wright,

48   Graham & Konttinen, 2016) has been published in order to examine whether correlates

49   of the two achievement goal orientations were moderated by the two measures.

50   In self-determination theory (Deci & Ryan, 1985), the reasons for motivated

51   actions are distinguished according to where a person's perceived locus of causality is,

52   or to what extent they are self-determined. Deci and Ryan (1985) proposed a

53   multidimensional concept of a motivational *continuum* with three main dimensions: (1)

54   intrinsic motivation; (2) extrinsic motivation, and; (3) amotivation. Additionally,

55   extrinsic motivation has four different levels: external regulation, introjected regulation,

56   identified regulation and integrated regulation. Conceptual links between the self-

57   determination theory and the achievement goal theory have been observed in several

58   studies (Chin et al., 2012; Ntoumanis, 2001; Zuber et al., 2015) demonstrating that task

59   oriented individuals are more self-determined and more intrinsically motivated, whereas

60   ego oriented individuals are less self-determined and more extrinsically motivated

61   (Ntoumanis, 2001). Through an extensive quantitative review, Louchbaum, Zazo, et al.

62   (2016) found a significant and small to moderate relationship in meaningfulness

63   between the task goal orientation and amotivation (r_w=-0.13), extrinsic motivation

64   (r_w=0.20), external regulations (r_w=0.12), internal regulations (r_w=0.34) and intrinsic

65   motivation (r_w=0.47). On the other hand, the ego goal orientation was significantly

66   small in meaningfulness related to amotivation (r_w=0.16), extrinsic motivation

67   (r_w=0.28), external regulation (r_w=0.21), and intrinsic motivation (r_w=0.14).

68   Nevertheless, based in the orthogonality of the two achievement goals,

69   examining task and ego goals separately may not yield the true picture, therefore it is

70   important to analyze goal profiles where possible (Fox, Goudas, Biddle, Duda, &

71   Armstrong, 1994). In order to approach motivation from a multidimensional

72   perspective, investigations have used profile analysis to examine the dynamics of the

73 motivational constructs, such as goal orientation and self-determination (Chian &

74 Wang, 2008; Etnier, Sidman, & Hancock, 2004; Gillet, Vallerand, & Paty, 2013; Hodge

75 & Petlichkoff, 2000; Wang et al., 2010). Results may differ when analyzing goals

76 separately compared to profiles of goals combinations. Previous studies in this area (i.e.,

77 Fox, et al., 1994; Hodge & Petlichkoff, 2000) have used mean or median split to create

78 four groups: high-task/high-ego (hi/hi), high-task/low-ego (hi-T/lo-E), high-ego/low-

79 task (hi-E/lo-T), and low-task/low-ego (lo/lo). Although these two procedures are

80 efficient, they enforce a structure on the data that might not reflect reality. One problem

81 related with this technique is that scores close to the median or mean are classified

82 arbitrarily as either high or low when they might actually represent average scores on

83 task and/or ego orientations. In recent years cluster analysis has increased in popularity

84 as an analytical procedure to examine varying goal profiles in sport psychology as it

85 goes beyond the crude procedures of median and mean split through the generation of

86 subgroups that fit the data satisfactorily by maximizing between-cluster differences and

87 minimizing within-cluster differences (Hodge & Petlichkoff, 2000)

88   Through cluster analysis, several authors have analysed constructs from different

89 theories (e.g., self-determination theory and achievement goal theory) in order to

90 identify subgroups with different motivational profiles in physical activity and sports

91 (Almagro, Sáenz-López, & Moreno-Murcia, 2012; Etnier et al., 2004; Hodge &

92 Petlichkoff, 2000; Wang et al., 2010). These studies have shown that cluster analysis is

93 a valid method that can identify homogeneous motivational profiles.

94   Although little is known on which types of motivation positively contribute to

95 performance, it is generally believed that motivation is conducive to performance. In

96 this sense, it is important to adopt a person-oriented approach (e.g., using cluster

97 analysis) rather than a variable-oriented approach (e.g., using self-determination index)

4

98   to examine how the different forms of motivation combine to generate different

99   motivational profiles (Gillet, Vallerand, & Paty, 2013).

100   Despite several studies using this type of analysis, most of them have focused on

101   school-aged children (Castillo, Balaguer, & Duda, 2000; Chian & Wang, 2008; Wang et

102   al., 2010). Studies focusing on adult athletes (Balaguer, Castillo, & Duda, 2008; Etnier

103   et al., 2004; Fonseca & Paula-Brito, 2000) and particularly elite adult athletes are scarce

104   (Gillet et al., 2013; Mallet & Hanrahan, 2004), as stated in two recently published

105   extensive reviews (Lochbaum, Çetinkalp, et al., 2016; Louchbaum, Zazo, et al. 2016).

106   Different authors have identified a diverse number of profiles in their samples

107   due to the different purposes of their investigations and techniques used for establishing

108   the profiles. In a sporting context, Hodge and Petlichkoff (2000) were not able to locate

109   any extreme goal profiles (using a mean-split procedure) in adolescent and adult rugby

110   players. However, the authors identified four profiles through cluster analysis.

111   Perceived rugby ability/competence discriminated the high-ego/moderate-task and low-

112   ego/moderate-task groups, with the former reporting greater perceived

113   ability/competence. In a sample of youth football players, Smith, Balaguer and Duda

114   (2006) observed four profiles that closely matched those observed by Hodge and

115   Petlichkoff (2000). Achievement goal profile differences were found for almost all

116   variables (task and ego involvement climate, peer acceptance, friendship ability and

117   satisfaction), with a general trend for those reporting relatively lower task goal

118   orientation to exhibit less adaptive responses. Almagro et al. (2012) found two profiles

119   in Spanish adolescent athletes: i) highly motivated profile, with high scores in both

120   forms of motivation, self-determined (intrinsic motivation and identified regulation) and

121   non-self-determined motivation (introjected and external regulation), and; ii) a

122   moderately motivated profile, with moderate scores (around 3 and 4) in forms of self-

123   determined and non-determined motivation. Although the authors highlighted the

124   importance of cluster-analysis to determine whether similar goal-orientation profiles can

125   be identified in specific groups (e.g., elite vs. recreational; elite vs. novice) of athletes in

126   different sports (e.g., football), there exist very few studies that have investigated top

127   level athletes, namely, top level football players.

128   In a study of adult tennis athletes, Gillet et al. (2013) investigated the situational

129   motivational profiles corresponding to high and low levels of performance in a real-life

130   setting and found the presence of three clusters (moderate-autonomous/high-controlled;

131   high-autonomous/high-controlled;   high-autonomous/low-controlled).   The   authors

132   concluded that the least self-determined profile predicted the lowest levels of

133   performance.

134   Despite football being the most popular sport worldwide (Sarmento et al., 2014),

135   it is surprising that motivational aspects commonly related to sports performance have

136   not been studied in-depth; particularly in elite players (for a review, see Lochbaum,

137   Çetinkalp, et al., 2016; Louchbaum, Zazo, et al. 2016). Modern football provides an

138   environment where athletes may be more extrinsically motivated (due to finances) than

139   intrinsically motivated, for enjoyment or personal achievement (Horn, 2001). Naturally,

140   all athletes have high intrinsic motivation (enjoyment; passion for the game). However,

141   the professional football environment may decrease this type of motivation.

142   Cognitive evaluation theory suggests that the elite sports environment predominantly

143   focuses on winning and with large financial considerations, which leads to lower levels

144   of self-determination and, consequently, lower levels of intrinsic motivation (Mallet &

145   Hanrahan, 2004). Laboratory and field research has demonstrated that elite competitions

146   have a negative influence on intrinsic motivation. Furthermore, perceived performance

147   climate attenuates the positive relationship between a mastery climate and increased

148 intrinsic motivation (Buch, Nerstad, & Safvenbom, 2017). Nevertheless, in an

149 investigation by Mallet and Hanrahan (2004), the authors identified that elite athletes

150 view financial compensation as more related to their self-competence than as behaviour

151 modifiers.

152   Elite sports, which are largely focused on winning and financial rewards

153 associated with victories may potentially decrease self-determined types of motivation

154 and may move the causality locus from internal to external. Nevertheless, there are

155 some aspects of elite sports that promote self-determination, and perception of

156 competence and bonding, which, in return, may promote an internal causality locus and

157 self-determined types of motivation (Deci & Ryan, 1985). Mallet and Hanrahan (2004)

158 suggest that the causality locus may move from external to internal as athletes mature;

159 and, as a result, financial compensation and rewards lose motivational strength. The

160 perception of competence and being accepted by others represents a more powerful

161 motivational strength. Additionally, Gillet et al. (2013) suggested that cluster analysis

162 with different samples of top performers (tennis players) reveals somewhat different

163 profiles because the nature of the social context could have an impact on the

164 development of motivational profiles characterized by high levels of controlled

165 motivation.

166   To better understand the relationship between aspects of motivation and the

167 performance level of adult footballers, the aim of this study was to identify differences

168 in motivation using different motivational profiles established through hierarchical

169 cluster analysis. Additionally, the relationship between achievement goals and different

170 types of motivation proposed by the self-determination theory were analyzed.

171

172 **Methods**

7

173   *Participants and Procedures*

174   Data was collected from a total of 21 football teams competing in the first and

175   second division of the Portuguese professional football league (n=6), second division B

176   and third division of the national championships (n=9), and regional championships

177   (n=6). The sample consisted of 304 football players ranging in age from 17 to 39 years

178   old (M_{age} = 25.4 ± 4.6 y). Consent from the coaches and players was obtained before

179   data collection. Protocol and procedures for this study were approved by the Research

180   Ethics Committee of the University of the authors.

181   *Measures*

182   *Achievement Goal Orientations*

183   The Portuguese version (Fonseca & Biddle, 1995; Fonseca & Paula-Brito, 2000)

184   of Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda and Nicholls

185   (1992) was used to assess athletes´ dispositional goal orientations. The stem for the 13

186   items was "I feel most successful in the sport when…" and assessed ego (e.g. "... I am

187   the only one capable of doing this", N_{items} = 6), and task orientation (e.g. "... I do my

188   best", N_{items} = 7). The replies were rated on a Likert scale, in which each item had a

189   response range from 1 (completely disagree) to 5 (completely agree). An adequate

190   internal consistency was obtained for each subscale, with Cronbach alpha coefficients

191   of .80 identified for both task and ego orientation subscales.

192

193   *Perceived autonomy - Self-Regulation Questionnaire (SRQ)*

194   To measure players perceived autonomy, the Portuguese version (Fonseca &

195   Biddle, 1997) of the Self-regulation Questionnaire (Ryan & Connell, 1989) was used.

196   The SRQ is composed of 17 items, grouped into five dimensions: (1) amotivation (e.g.

197   "I do not have any reason to do sports", N_{items} = 3); (2) external regulation (e.g. "I do

198   sports because other people tell me I should do it", N_{items} = 4); (3) introjected regulation

199   (e.g., "I feel guilty when I do not practice sports", N_{items} = 4); (4) identified regulation

200   (e.g. "I valorise the benefits of practicing sports", N_{items} = 3); and (5) intrinsic regulation

201   (e.g. "I practice sports because it is fun", N_{items} = 3). Answers were given on a five-point

202   Likert scale, and adequate internal consistency were obtained for each subscale, with

203   Cronbach's alpha coefficients for the different dimensions ranging between 0.70 and

204   0.80.

205   The questionnaires were given to each athlete in a quiet place, without

206   distractions. Each participant took 15-20 minutes to complete the questionnaires and

207   responses were kept anonymous. Participants were informed about the general purpose

208   of the study and told that their identities would be kept strictly confidential and that all

209   the items in the questionnaires should be answered as honestly as possible. The

210   participants encountered no problems when completing either of the questionnaires.

211

212   *Data analysis*

213   Frequencies, means, and standard deviations were calculated to characterize the

214   participants. Normality for the dimensions of the Portuguese versions of the TEOSQ

215   and SRQ was tested by Kolmogorov-Smirnov's test of normality. All missing data and

216   outliers were eliminated. Pearson's r coefficient was used to calculate the correlations

217   between the mean values of the variables.

218   Variables were standardized using z-score (M = 0, SD = 1). Athletes were

219   grouped/classified through hierarchical and non-hierarchical cluster analysis. Firstly, the

220   nearest neighbour hierarchical cluster analysis was conducted, using the squared

221   Euclidian distance as a measure of dissimilarity. The R-square was used as criteria for

222   the retention of the number of clusters. From this analysis, four clusters were retained.

223 For validation and classification of the athletes in the four clusters retained, a k-Means

224 non-hierarchical cluster analysis was conducted. Differences between clusters, for the

225 dimensions of the Portuguese versions of the TEOSQ and SRQ, were tested by the one-

226 way ANOVA test, followed by the Tukey's HSD post hoc test. Chi-square test was used

227 to determine if the competitive level of the athletes was independent of the clusters. All

228 analyses were performed using IBM SPSS v.23.

229

230 **Results**

231 *Descriptive statistics and inter correlations*

232   Table 1 presents the participant's characteristics as mean age (25.5 ± 4.5 y),

233 mean years of experience as a footballer (7.7 ± 4.8 y), competitive level, playing

234 position, and nationality.

235

236   *****Table 1 near here*****

237

238   Internal consistency and mean values for all dimensions of goal orientation and

239 perceived autonomy are presented in Table 2. In general, the athletes reported high

240 scores in task orientation, and in the self-determined components of motivation

241 (intrinsic motivation and identified regulation). Task and ego orientations were weakly

242 related, supporting the orthogonal nature of the two goals. Task orientation was

243 significantly correlated with intrinsic motivation (r=0.4, $p<0.001$) and identified

244 regulation (r=0.5, $p<0.001$), while ego orientation was significantly correlated (although

245 weakly) with introjected regulation (r=0.15, $p<0.01$).

246

247   *****Table 2 near here*****

248

Cluster analysis

250   Table 3 shows the mean values, standard deviations and z-score used to create

251 the clusters. Clusters profiles are presented in Figure 1. To determine if the profiles

252 were classified as high or low when comparing clusters, z-scores values near ±0.5 were

253 used. Z-scores near ±0.3 were considered moderate. Athletes from Cluster 1 (n=113)

254 had high scores for task orientation, intrinsic motivation, identified regulation and

255 introjected regulation, and high negative scores for amotivation. Cluster 2 (n=80) was

256 characterized as presenting moderate scores in most of the analysed variables, shifting

257 between positive scores (ego orientation, introjected regulation) and negative scores

258 (task orientation, intrinsic motivation, identified regulation). External regulation and

259 amotivation were the only high scores for this cluster. Cluster 3 (n=96) presented

260 negative scores in all variables. This group of athletes had moderate negative scores for

261 task orientation, intrinsic motivation, and amotivation, and high negative scores for ego

262 orientation, identified regulation, introjected regulation, and external regulation.

263 Athletes from Cluster 4 (n=25) obtained high scores for external regulation and

264 amotivation while having high negative scores for task orientation, intrinsic motivation,

265 and identified regulation, suggesting this group was the most amotivated.

266   To examine the characteristics of each profile an ANOVA analysis was

267 performed (Table 3). Significant differences were found between clusters for all the

268 analysed variables.

269

270   *****Table 3 near here*****

271

272

273   *****Figure 1 near here*****

274

275

276   Significant differences between clusters regarding competitive level were

277   verified ($\chi 2(6)$=19.130, *p*=0.004) (Table 4). Amateurs were less represented in Cluster 2

278   and more represented in Cluster 3 than professional and semi-professionals.

279   Professional athletes were more represented in Cluster 4 than amateur and semi-

280   professional athletes.

281

282   *****Table 4 near here*****

283

284

285   **Discussion**

286   The aim of this study was to identify the motivational profiles of Portuguese

287   football players from different competitive levels, based on self-determination theory

288   (Deci & Ryan, 1985) and achievement goal theory (Nicholls, 1989). To the best of our

289   knowledge, this is the first study to analyze these variables in professional football

290   players.

291   Similar to other studies (Chian & Wang, 2008; Etnier et al., 2004; Hodge &

292   Petlichkoff, 2000; Wang et al., 2010), our results showed that athletes seem to be more

293   oriented to demonstrating competence about themselves than to demonstrate

294   competence about their peers. This can be construed as a positive result, as higher task

295   orientation levels are associated with persistence and commitment in sports (Roberts,

296   2001). Lochbaum, Çetinkalp, et al. (2016), found estimated mean values of 4.15 ± 0.30

297   and 3.04 ± 0.51 for task and ego orientations, respectively. The results from this group

12

298   of Portuguese footballers are very similar for task orientation, but they diplayed lower

299   mean levels for ego orientation, when looking at the overall results of the reviewed

300   studies, including POSQ and TEOQ. Nevertheless, the analyses of Lochbaum,

301   Çetinkalp, et al. (2016), using the TEOQ reveal very similar results with those found in

302   our study (4.09 ± 0.28; 2.92 ± 0.48, for task and ego orientations, respectively).

303   Additionally, other similar scores can be found in this review of literature, when

304   assessing the specific analysis performed according the sex, sport level, sport type and

305   collective/individualistic countries (West Europe Countries in our specific case).

306   Task goal was significantly related with intrinsic motivation, identified

307   regulation and amotivation. The ego goal orientation was significantly related to

308   introjected regulation. The relationships between both task and ego goal orientations

309   with the different components of motivation are consistent with previous results (e.g.,

310   Biddle, S., Wang, C., Kavussanu, M., & Spray, C., 2003; Lochbaum, Zazo, et al., 2016,

311   Wang & Biddle, 2001) and suggest that task orientation is more motivationally

312   adaptive, regardless of the level of ego orientation.

313   Athletes attributed higher scores to higher levels of perceived autonomy. In fact,

314   our results demonstrated a gradual increase of the scores from the most extrinsic to the

315   most intrinsic components of motivation (external regulation, introjected regulation,

316   identified regulation, intrinsic motivation), except for identified regulation, which had

317   higher scores than the intrinsic motivation. The higher levels of identified regulation

318   observed may be related to the fact that most of the participants were professional or

319   semi-professional athletes and were exposed to an elite sports environment. Therefore,

320   more than being involved in football for intrinsic nature reasons (e.g. enjoyment), it is

321   possible that these athletes were involved mostly for the importance, prestige, and value

322   attributed to football. Similar findings were obtained in a study investigating regular

323 sports participation among university students (Wilson, Rodgers, Fraser, & Murray,

324 2004). The authors suggested that, in the context of sport, intrinsic motives and

325 participating in the activities by itself are not sufficiently interesting or gratifying to

326 regulate peoples' participation. The authors concluded that identified regulation,

327 intrinsic motivation, and persistence are key predictors of motivational adaptive

328 consequences for practicing sports.

329 Congruent with previous studies (Gillet et al., 2013; Hodge and Petlichkoff,

330 2000; Smith, Balaguer and Duda, 2006), the present study demonstrates that cluster

331 analysis is able to identify subgroups of athletes with differentiated motivational

332 patterns. As stated by Chian and Wang (2008), the present findings and previous

333 research provides ample evidence that motivation is multi-dimensional and cannot

334 simply classified as "high" versus "low" based on a single variable (e.g. Hodge &

335 Petlichkoff, 2000). In line with previous research (e.g., Chian & Wang, 2008; Hodge &

336 Petlichkoff, 2000), we found no extreme group profiles (hig-ego/high-task or low-

337 ego/low-task) when cluster analysis was used.

338 Nevertheless, the analysis of the different motivational profiles presented some

339 interesting results. There was no difference in the competitive level of the athletes in

340 Cluster 1; which was characterized as containing higher task orientation levels.

341 Considering that Cluster 1 is composed of predominately professional and semi-

342 professional athletes this result was expected. Indeed, according to previous findings,

343 professional and semi-professional athletes are significantly more represented in this

344 type of cluster and also have higher ego orientation levels. Furthermore, higher task

345 orientation levels associated with higher levels of ego orientation are the most adaptive

346 motivational pattern for these athletes (Biddle, 1999; Cumming et al., 2002; Georgiadis,

347 Biddle, & Auweele, 2000; Mallet & Hanrahan, 2004; Roberts, 2001). However, the

14

348   previous studies of Etnier et al. (2004) have not observed this profile. The profile from

349   Cluster 1 can be considered as the most "motivationally adaptive profile" as it presents

350   high scores for task orientation, is associated with moderate ego orientation scores, and

351   demonstrates higher scores in the most self-determined types of motivation (intrinsic,

352   identified, and introjected), as well as low scores in external motivation and

353   amotivation, when compared to other clusters' profiles. This suggestion is supported,

354   amongst others, by the results of Gillet et al. (2013), who found that tennis players who

355   had profiles with higher levels of self-determination were more likely to have higher

356   levels of performance.

357   The profile of Cluster 2 is the most common among high competitive level

358   athletes, presenting higher scores for the ego orientation, and combining high scores in

359   the more self-determined components of motivation with relatively high scores in the

360   less self-determined components. Furthermore, amotivation scores were slightly higher

361   in this cluster.

362   Cluster 1 and Cluster 2 presented the highest scores in introjected regulation. In

363   a study using female athletes, Wilson et al. (2004) concluded that introjected regulation

364   is an important motivational strength, as it seems to be a strong predictor of behaviours

365   like persistence and effort in physical activity. However, although we suggested that

366   introjected regulation or even external regulation could be related to higher levels of

367   performance in football players, we should take into consideration that less self-

368   determined levels of motivation potentially affect athletes' emotional component related

369   to performance. Athletes with lower self-determined levels of motivation are less likely

370   to have positive feelings towards competition and will generally be more anxious before

371   and after competition (Perreault & Vallerand, 1998). Therefore, less self-determined

372   levels of motivation are a "double-edged sword", as it relates to better performance but

373   has high emotional setbacks. Furthermore, emotional self-regulation resource

374   impairment influences sport performance (Wagstaff, 2014).

375   Cluster 4 presents the less adaptive characteristics for motivation in physical

376   activity and sports. Professional athletes were less represented in this cluster than semi-

377   professional and amateur athletes. This suggests that athletes from lower competitive

378   levels have lower levels of intrinsic motivation and identified regulation, and are more

379   amotivated and susceptible to external types of motivation. However, when interpreting

380   this finding, it must be taken into consideration that only 25 athletes were part of this

381   cluster and thus characterised by this profile. Nevertheless, it is important to highlight

382   that this group of athletes is one that is at higher risk of dropout from sporting activities

383   (Etnier et al., 2004). Most of the athletes in Cluster 4 were semi-professional, and it is

384   possible that the high amotivation scores are related to this. Being at a middle stage

385   between professional and amateur sports on the one hand can give access to

386   professionalization, but on the other hand, it is where many athletes finish their careers.

387   Thus, athletes who expect to reach professionalization and fail, and athletes who once

388   were professional athletes and now are at the end of their careers are possibly more

389   externally motivated and amotivated.

390   The analyses of Cluster 4 cannot be dissociated from the analyses of Cluster 3,

391   where amateurs were the most represented group and the profile was characterized by

392   low levels of amotivation and external motivation. It is plausible that amateur athletes,

393   who practice in harsh conditions after working hours and without financial

394   compensations, are involved in football mostly because of intrinsic motives, such as

395   enjoyment or pleasure for the game.

396   A few limitations should be noted in the current study. The variables measured

397   were self-reported which may lead to a common method variance bias. However, as

398 stated by Li, Wang, Pyun, and Kee (2013) self-reported data may be the most valid

399 measurement method in this type of study. Participants were deemed to be in the best

400 position to report on their levels of motivation. Additionally, the data were collected in

401 different phases of the sporting season, before or after the training sessions, and the

402 different situational variables may have influenced the findings. Future research should

403 also analyze relationships between achievement goals theory and Self-determination

404 theory and other variables, such as emotions, behaviours, achievements strategies,

405 personality traits, etc., in order to more objectively identify which clusters lead to more

406 adaptive/maladaptive outcomes.

407

408 **Conclusion**

409   The findings from this study suggest that there is no typical motivational profile

410 for football players from different competitive levels. However, athletes from higher

411 competitive levels were more represented in clusters characterized by high task

412 orientation scores associated with moderate ego orientation scores and relatively high

413 scores in the most self-determined types of motivation. Athletes from Cluster 4 were the

414 least motivationally adaptive and presented the greatest risk of dropout from football.

415 Therefore, this group of athletes should be the target of specific interventions that aim to

416 prevent dropouts.

417

418 **References**

419 Almagro, B., Sáenz-López, P., & Moreno-Murcia, J. (2012). Perfiles motivacionales de

420   deportistas adolescentes españoles. *Revista de Psicologia del Deporte, 21*(2),

421   223-231.

422 Balaguer, I., Castillo, I., & Duda, J. (2008). Apoyo a la autonomía, satisfacción de las

423   necessidades, motivación y bienestar en deportistas de competición: un análisis

424   de la teoria de autodeterminación. *Revista de Psicologia del Deporte, 17*(1),

425   123-139.

426 Biddle, S. (1999). Targeting goal: but which goal? Motivating the child in football.

427   *"Insight" – The F. A. Coaches Association Journal, 4*(2), 40.

428 Biddle, S., Wang, C. K. J., Kavussanu, M., & Spray, C. (2003). Correlates of

429   achievement goal orientations in physical activity: A systematic review of

430   research. *European Journal of Sport Science, 3*(5), 1-20.

431 Buch, R., Nerstad, C. G., & Safvenbom, R. (2017). The interactive roles of mastery

432   climate and performance climate in predicting intrinsic motivation.

433   *Scandinavian Journal of Medicine and Science in Sports, 27*(2), 245-253.

434 Castillo, I., Balaguer, I., & Duda, J. (2000). Las orientaciones de meta y los motivos de

435   prática deportiva en los jóvenes deportistas valencianos escolarizados. *Revista*

436   *de Psicologia del Deporte, 9*(1-2), 37-50.

437 Chian, L., & Wang, C. (2008). Motivational Profiles of Junior College Athletes: A

438   Cluster Analysis. *Journal of Applied Social Psychology, 20*, 37-50.

439 Chin, N.-S., Khoo, S., & Low, W.-Y. (2012). Self-Determination and Goal Orientation

440   in Track and Field. *Journal of Human Kinetics, 33*, 151-161.

441 Cumming, J., Hall, C., Harwood, C., & Gammage, K. (2002). Motivational orientations

442   and imagery use: a goal profiling analysis. *Journal of Sports Sciences, 20*(2),

443   127-136.

444 Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human*

445   *behavior*. New York: Plenum.

446 Duda, J., & Nicholls, J. (1992). Dimensions of achievment motivation in schoolwork

447   and sport *Journal of Educational Psychology, 84*(3), 290-299.

448 Etnier, J., Sidman, C., & Hancock, L. (2004). An examination of goal orientation

449   profiles and motivation in adult team sport. *International Journal of Sport*

450   *Psychology, 35*, 173-188.

451 Fenton, S. A. M., Duda, J. L., & Barrett, T. (2016). Optimising physical activity

452   engagement during youth sport: a self-determination theory approach. *Journal of*

453   *Sports Sciences, 34*(19), 1874-1884. doi:10.1080/02640414.2016.1142104

454 Fonseca, A., & Biddle, S. (1995). *Versão portuguesa do Task and Ego Orientation in*

455   *Sport Questionnaire (TEOSQ): Questionário sobre a orientação para a Tarefa e*

456   *para o Ego no desporto (TEOSQp)*. Porto: FCDEF-UP.

457 Fonseca, A., & Biddle, S. (1997). *Questionário de Orientação para a Tarefa e para o*

458   *Ego no Desporto*. Porto: FCDEF-UP.

459 Fonseca, A., & Paula-Brito, A. (2000). Las concepciones sobre la competencia

460   deportiva y los objetivos de logro. *Revista de Psicologia del Deporte, 9*(1-2),

461   159-176.

462 Fox, K., Goudas, M., Biddle, S., Duda, J., & Armstrong, N. (1994). Children's task and

463   ego goal profiles in sport. *British Journal of Educational Psychology, 64*(2),

464   253-261.

465 Georgiadis, M., Biddle, S., & Auweele, Y. (2000). Cognitive, emotional and

466   behavioural connotations of task and ego goal orientation profiles: an

467   ideographic approach using hierarchical class analysis. *International Journal of*

468   *Sport Psychology, 32*, 1-20.

469   Gillet, N., Vallerand, R., & Paty, B. (2013). Situational motivational profiles and

470   performance with elite performers. *Journal of Applied Social Psychology, 43*,

471   1200-1210.

472   Hodge, K., & Petlichkoff, L. (2000). Goal profiles in sport motivation: A cluster

473   analysis. *Journal of Sport and Exercise Psychology, 22*, 256-272.

474   Horn, R. (2001). World-wide review of science and football research. *"Insight" – The*

475   *F. A. Coaches Association Journal, 4*(4), 20-22.

476   Li, C. X., Wang, C. K. J., Pyun, D. Y., & Kee, Y. H. (2013). Burnout and its relations

477   with basic psychological needs and motivation among athletes: A systematic

478   review and meta-analysis. *Psychology of Sport and Exercise, 14*(5), 692-700.

479   Lochbaum, M., Cetinkalp, Z. K., Graham, K. A., Wright, T., & Zazo, R. (2016). Task

480   and ego goal orientations in competitive sport: a quantitative review of the

481   literature from 1989 to 2016. *Kinesiology, 48*(1), 3-29.

482   Lochbaum, M., Zazo, R., Cetinkalp, Z. K., Wright, T., Graham, K. A., & Konttinen, N.

483   (2016). A meta-analytic review of achievement goal orientation correlates in

484   competitive sport: a follow-up to lochbaum et al. (2016). *Kinesiology, 48*(2),

485   159-173.

486   Mallet, C., & Hanrahan, S. (2004). Elite athletes: why does the "fire" burn so brightly?

487   *Psychol Sport Exerc, 5*, 183-200.

488   Nicholls, J. (1989). *The competitive ethos and democratic education*. Cambridge, MA:

489   Harvard University Press.

490   Ntoumanis, N. (2001). Empirical links between achievement goal theory and self-

491   determination theory in sport. *Journal of Sports Sciences, 19*(6), 397-409.

492   Olmedilla, A., Ortega, E., Andreu, M., & Ortín, F. (2010). Programa de intervención

493   psicológica en futbolistas: evaluación de habilidades psicológicas mediante el

494   CPRD. *Revista de Psicologia del Deporte, 19*(2), 249-262.

495   Perreault, S., & Vallerand, R. (1998). Créer un climat motivationnel: la motivation

496   intrinsèque et extrinsèque dans le sport. In E. Thill & P. Fleurance (Eds.), *Guide*

497   *pratique de la préparation psychologique du sportif* (pp. 93-108). Paris: Vigot.

498   Roberts, G. (2001). Understanding the dynamics of motivation in physical activity: The

499   influence of achievement goals on motivational processes. In G. Roberts (Ed.),

500   *Advances in motivation in sport and exercise* (pp. 79-100). Champaign: Human

501   Kinetics.

502   Ryan, R., & Connell, J. (1989). Preceived locus of causality and internalization:

503   Examining reasons for acting in two domains. *Journal of Personality and Social*

504   *Psychology, 57*(5), 749-761.

505   Sarmento, H., Marcelino, R., Anguera, M., Campaniço, J., Matos, N., & Leitão, J.

506   (2014). Match analysis in football: a systematic review. *Journal of Sports*

507   *Sciences*(32), 1831-1843.

508   Shah, J., & Gardner, W. (2008). *Handbook of motivation science*. New York: Guilford

509   Press.

510   Smith, A. L., Balaguer, I., & Duda, J. L. (2006). Goal orientation profile differences on

511   perceived motivational climate, perceived peer relationships, and motivation-

512   related responses of youth athletes. *Journal of Sports Sciences, 24*(12), 1315-

513   1327.

514   Wagstaff, C. R. (2014). Emotion regulation and sport performance. *J Sport Exerc*

515   *Psychol, 36*(4), 401-412.

516   ang, C., & Biddle, S. (2001). Young people´s motivational profiles in physical activity:

517   a cluster analysis. *Journal of Sport & Exercise Psychology, 23*, 1-22.

518   Wang, C., Liu, W., Sun, Y., Lim, B., & Chatzisarantis, N. (2010). Chinese Students'

519   Motivation in Physical activity: Goal profile using Nicholl's achievment goal

520   theory. *International Journal of Sport and Exercise Psychology, 8*, 248-301.

521   Wilson, F., Rodgers, W., Fraser, S., & Murray, T. (2004). Relationships between

522   exercise regulations and motivational consequences in university students.

523   *Research Quarterly for Exercise and Sport, 75*(1), 81-91.

524   Zuber, C., Zibung, M., & Conzelmann, A. (2015). Motivational patterns as an

525   instrument for predicting success in promising young football players. *Journal*

526   *of Sports Sciences, 33*(2), 160-168.

527

Tables

529

530   Table 1. Participant characteristics (n=315).

	n or M±SD	%
Age	25.4±4.5	
Football experience (years)	7.8±4.8	
Competitive level		
Amateur	70	23.0
Semi-professional	144	47.4
Professional	90	29.6
Position		
Goalkeeper	31	10.2
Defender	113	37.2
Midfielder	104	34.2
Forwards	56	18.4
Nationality		
Portuguese	267	87.8
Other from Europe	3	1.0
Brazilian	25	8.2
African	9	3.0

531

532   Table 2. Internal consistency and mean values for all dimensions of goal orientation and

533   perceived autonomy.

	α	M±SD	1	2	3	4	5	6	7
1. Task	0.87	4.16±0.53	1.00	-0.03	0.42***	0.51***	0.26***	-0.07	-0.26***
2. Ego	0.89	2.60±0.86		1.00	0.04	0.04	0.15**	0.08	-0.03
3. Intrinsic	0.73	4.19±0.63			1.00	0.57***	0.25***	-0.07	-0.29***
4. Identified	0.75	4.33±0.60				1.00	0.52***	0.06	-0.27***
5. Introjected	0.70	3.42±0.97					1.00	0.37***	0.02
6. External	0.75	1.81±0.66						1.00	0.45***
7. Amotivation	0.78	1.41±0.62							1.00

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

534

535   Table 3. Mean values, standard deviation and z-scores of the four clusters.

	Cluster 1		Cluster 2		Cluster 3		Cluster 4		p
	M±SD	z	M±SD	z	M±SD	z	M±SD	z	
Task	4.56±0.40	0.76	4.07±0.41	-0.17	3.90±0.44	-0.49	3.53±0.44	-1.18	<0.001[b]
Ego	2.57±0.96	-0.04	2.82±0.82	0.26	2.46±0.75	-0.16	2.49±0.67	-0.12	0.045[c]
Intrinsic	4.65±0.46	0.74	4.00±0.45	-0.30	3.96±0.56	-0.36	3.40±0.50	-1.26	<0.001[d]
Identified	4.84±0.26	0.86	4.28±0.37	-0.08	3.90±0.55	-0.72	3.57±0.45	-1.28	<0.001[b]
Introjected	3.99±0.84	0.58	3.75±0.53	0.33	2.50±0.79	-0.94	3.03±0.57	-0.40	<0.001[e]
External	1.71±0.64	-0.14	2.30±0.48	0.74	1.29±0.38	-0.77	2.43±0.50	0.94	<0.001[f]
Amotivation	1.09±0.24	-0.53	1.81±0.62	0.64	1.14±0.28	-0.44	2.55±0.58	1.84	<0.001[g]

[a] Tested by ANOVA, followed by *post hoc* Tukey's HSD.

[b] All clusters are statistically different.

[c] Clusters 2 and 3 are statistically different from each other.

[d] Clusters 1 and 4 are statistically different from each other and statistically different from all the other clusters.

[e] Clusters 3 and 4 are statistically different from each other and statistically different from all the other clusters.

[f] Clusters 1 and 3 are statistically different from each other and statistically different from all the other clusters.

[g] Clusters 2 and 4 are statistically different from each other and statistically different from all the other clusters.

536

537   Table 4. Athletes cluster distribution accordingly to competitive levels.

	Cluster 1		Cluster 2		Cluster 3		Cluster 4		p^a
	n	%	n	%	n	%	n	%	
Competitive level									0.004
Amateur	22	31.4	10	14.3[b]	29	41.4[c]	9	12.9	
Semi-professional	58	40.3	39	27.1	33	22.9	14	9.7	
Professional	33	36.7	31	34.4	24	26.7	2	2.2[d]	
Total	113	37.2	80	26.3	86	28.3	25	8.2	

[a] Tested by chi-square.
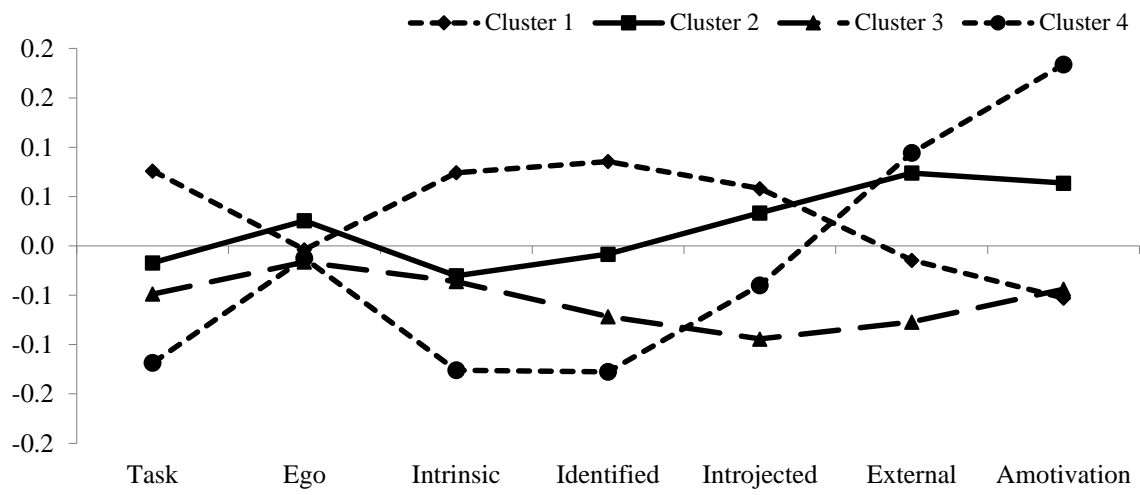[b] Standardized residuals = -2.0
[c] Standardized residuals = 2.1
[d] Standardized residuals = -2.0

538

Figures

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541

Figure 1. Clusters profiles for the four clusters solution.

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