

Student-Athletes' Motivation and Identity: Variation Among Brazilian and Portuguese University Student-Athletes

Psychological Reports
2020, Vol. 123(5) 1703–1723
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DOI: 10.1177/0033294119892885
journals.sagepub.com/home/prx



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Abstract

This study examined the variation of student-athletes' identity and motivation across Portuguese and Brazilian universities, accounting for variation in gender, student-athletes' training hours per week, sports level, student-athletes status within each university, and university type. We initially established the validity of the Baller Identity Measurement Scale questionnaire and the Student-Athletes' Motivation toward Sports and Academics Questionnaire-based observations among 441 Brazilian and Portuguese student-athletes. Then, the validated version of the

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questionnaires was applied to a total sample of 765 student-athletes from Brazil ($n=568$) and Portugal ($n=197$). We further considered individual (hours of training and student-athlete status) and contextual characteristics (university type and country). Multilevel regression and poststratification were used to estimate each student-athlete identity and motivation as a function of his or her individual and contextual characteristics. Overall, the predictions showed that cultural (country), academic (type of university), and athletic (training hours) context likely have a substantial influence on student-athletes' identity and motivation.

Keywords

Sports, multilevel regression and poststratification, university, questionnaires, psychometric, motivation, identity

Introduction

The student-athletes dual career is a research topic of interest worldwide (Guidotti, Cortis, & Capranica, 2015), especially due to its cultural praxis (Stambulova & Ryba, 2014) and the interest of its development by government agencies (European Commission, 2012; European Parliament, 2015, 2017). The combination of academic and athletic commitments is a complex challenge to those engaged in dual career (Aquilina, 2013), even more at the early stages of a college degree (Gayles & Baker, 2015). There are two main psychological attributes to balance athletic commitments with the academic duties (Aquilina, 2013; Debois, Ledon, & Wylleman, 2015) or vice versa: (i) how student-athletes identify themselves (e.g., student, athlete, or both) (Lally & Kerr, 2005) and (ii) how student-athletes feel about their motivation in both contexts (Lupo et al., 2017b). Furthermore, these psychological attributes are related to each other (Pilarska, 2017) and likely have a major influence on student-athletes decision to pursue a dual career or choose one career over other (Ferdinand & Czernochowski, 2018; Stambulova, Engström, Franck, Linnér, & Lindahl, 2015; Yukhymenko–Lescroart, 2014).

Identity changes are mostly based on how someone perceives about himself/herself, and how this same one feels about being in his social environment (Ronkainen, Kavoura, & Ryba, 2016). In particular, for student-athletes, there may be an “identity crisis,” depending on the perspective that this individual may assume different identities in two contexts which often compete or conflict. To measure the academic and athlete's identity, the Baller Identity Measurement Scale has been proposed and validated with student-athletes from the United States (Harrison et al., 2010). The original scale consists of 10 items with a four-factor structure (social identity, exclusivity, positive

affectivity, and negative affectivity). An Italian version of the questionnaire was validated recently (Lupo et al., 2017a), but with a two-factor structure (e.g., Social Identity and Identity Gain/Loss).

It has been noted that basic psychological needs (e.g., internal sources) that may shape the individual motivations are influenced by the context (e.g., external factors) (Ryan, Bradshaw, & Deci, 2019). In the context of the student-athlete dual career, it has been proposed and validated a questionnaire to measure student-athletes' motivation toward sports and academics, that is, the Student-Athletes' Motivation toward Sports and Academics Questionnaire. The questionnaire is comprised of 30-item with a three-factor structure, Student Athletic Motivation, Academic Motivation, and Career Athletic Motivation. Other versions of the questionnaire have been validated in different contexts, such as the United Arab Emirates version (Fortes, Rodrigues, & Tchantchane, 2010), the Italian version (Guidotti et al., 2013), the Italian harmonized version (Guidotti & Capranica, 2013), the Slovenia version (Lupo, Tessitore, Capranica, Rauter, & Mojca, 2012), and the South Korean version (S. Park, Hong, & Lee, 2015). Overall, there were differences in the factor structures of the adapted versions compared to the original version. These differences may reflect cultural variation between samples, hence measurement scales based on specific populations may be better to capture student-athletes' identity and motivation.

The international students' mobility triggered mainly by the European Union Erasmus program benefited also athletes that look for opportunities to develop abroad their skills and contacts with other training methods. In fact, the number of student-athletes moving around the world is increasing (Ryba, Stambulova, Ronkainen, Bundgaard, & Selänne, 2015) and the topic drew the attention from European scholars, practitioners, and political institutions and ignited an ongoing debate. In 2012, the European Union Guidelines on the dual career of athletes expressed the need for development policies to increase student-athlete mobility, and efforts are being made to increase the mobility conditions of the student-athlete through scholarships and special programs. However, student-athletes are a global population and, in this particular field, it is important for sport sciences to attain true international collaboration and work together to attain a greater understanding of what this population may struggle with. Furthermore, it seems crucial to breaking out with the parochialism and ethnocentrism that characterizes part of sports research.

From this point of view, comparative studies are imperative in order to identify similarities and differences across cultures and enhance a better understanding of the perceptions, beliefs, and aspirations that shape the experience of being an athlete and a student. It is also necessary to move on from an ethnographic stance and assume methodological sophistication as a way to assimilate a body of knowledge that can be the subject of comparison and interpretation. Brazil and Portugal represent optimal contexts for a comparative empirical study. Portugal represents a paradigmatic case, belonging to the group of European

Union countries that have comprehensive legislation about school sport. The Higher Education Institutes is responsible to provide opportunities for student-athletes through self-policies orientated by the government (Aquilina, 2009). Brazil has a more liberal and laissez-faire stance regarding sport in universities. According to Brettschneider and Brandl-Bredenbeck (2007), functional, conceptual, linguistic, and sample equivalences are essential categories for cross-cultural comparative studies. In the present study, all the above conditions are respected. Constructs like university sport, motivation, or identity are functionally and conceptually equivalent in both countries. We were especially careful about linguistic equivalence because, although the Portuguese language is common, the wording and significance can be different and we adapted the questionnaires to the specific populations and performed separated analysis. In any case, we avoided the dichotomy between cultural relativism and universalism because it has no sense, as we looked at the data without a priori interpretations.

Considering that student-athletes identity and motivation are influenced by individual characteristics and social context (Guidotti et al., 2015), these pertain to different data levels, that is, a hierarchical data structure with effects that likely vary between different subgroups. On the other hand, in several areas of psychology research, there is an interest in effects that hold to some wider population (Kennedy & Gelman, 2019). Furthermore, estimations are often based on non-representative samples, likely with relatively sparse outcomes across subgroups. Often single-level analysis (e.g., analysis of variance) is used to deal with hierarchical data and infer to target populations of interest, although inappropriately. Multilevel regression and poststratification (Gelman & Little, 1997; D. K. Park, Gelman, & Bafumi, 2004) have been proposed for the estimation of population-level quantities from a sparse and possibly non-representative population (Kennedy & Gelman, 2019). The first step of the approach is to use multilevel regression to model individual outcomes of interest as a function of individuals or contextual covariates. Then, the outcome estimates for each individual-contextual subgroup are weighted by the proportions of each subgroup in the actual population to derive an overall population-level estimate (Downes et al., 2018). In particular, the approach allows for improved estimates of small and sparse group data and consequently predicts a target population (Gelman & Hill, 2007). Multilevel regression and poststratification have been used mainly to estimate the pre-election polls (Gelman & Little, 1997; D. K. Park et al., 2004) and recently has been presented in health research (Barrington-Leigh & Millard-Ball, 2017; Downes et al., 2018; Eke et al., 2016; Van der Heyden et al., 2014; Zhang et al., 2015), and there is no available illustration in sports science surveys, to our best knowledge.

In the present study, we considered multilevel regression and poststratification to estimate variation between Brazilian and Portuguese university student-athletes' motivation toward sports and academics, and identity, accounting for

an individual (gender, hours of training, sports level, and student-athlete status), and contextual characteristics (university type and country). Given the context of the observations, we initially explored the validity of Portuguese translated versions of the Baller Identity Measurement Scale and the Student-Athletes' Motivation toward Sports and Academics Questionnaire in both Brazilian and Portuguese contexts. We included these variables in our study to bring a broader point of view about student-athletes and be able to discuss and reflect how to integrate gender (Tekavc, Wylleman, & Erpic, 2015), training (Lupo et al., 2017a, 2017b), support policies (European Parliament, 2017), educational system (Aquilina & Henry, 2010), and culture aspects (Stambulova & Ryba, 2014) in the student-athletes' dual-career topic.

Materials and methods

Experimental approach to the problem

The sample comprised 765 student-athletes from Brazil ($n = 568$) and Portugal ($n = 197$). Data were collected during the national university games in each country. The sample distribution between Brazilian and Portuguese student-athletes was unbalanced. This likely reflects the demographic differences between both countries. Also, the sample included both female ($n = 400$) and male ($n = 365$) student-athletes. The study adopts a cross-sectional design. Participants considered in this study were student-athletes enrolled in a higher education degree and engaged in formal sports activities only within the universities or competing for organized sports competition (regulated by national sports federations). The study was approved by the Research Ethics Committee of the Federal University of Santa Catarina. Participation in the study was voluntary; all student-athletes were 18 years old or older and provided informed consent.

The following variables were extracted for use as potential individual and contextual covariates in multilevel modeling: gender (female and male), hours of training per week (0–5, 6–10, more than 11 hours per week), sports level (local competition level, national level, or international competition level), student-athlete status (with formal student-athlete status within the university, without formal student-athlete status within the university), university type (private and public), and university country (public and private).

Validity of the factor structures of the Portuguese versions of the Baller Identity Measurement Scale and Student-Athletes' Motivation toward Sports and Academics Questionnaire

Initially, we examined the reliability and validity of the factor structure of the Portuguese version for Brazilian and Portuguese student-athletes. The factor

analysis was estimated using the lavaan package, available as a package in the R statistical language (R Core Team, 2018). We adopted the criteria of values ≥ 0.40 for the exploratory factor analysis (Principal Axis Factor; Direct Oblimin Rotation with Kaiser Normalization) for an item loading on factor and no less than three items in a factor (Hair, Black, Babin, & Anderson, 2009). To examine the internal consistency of each factor, the Cronbach alpha coefficients higher than 0.70 were considered acceptable. Furthermore, confirmatory factor analysis was applied to examine the factorial structure of the model adopting factor loadings cut-off point of 0.7 (Hair et al., 2009) and following the indexes and their respective cut-off points according to the specialized literature (Jackson, Gillaspay, & Purc-Stephenson, 2009).

The Portuguese version of the Baller Identity Measurement Scale was translated in a pilot study (unpublished data). The Portuguese version for Brazilian and Portuguese student-athletes questionnaire is comprised of eight items and two factors structure (Affectivity and Social Identity), where participants state their level of agreement with the statements on a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). In the exploratory factor analysis (Kaiser normalization = 0.86), five items were grouped in factor Affectivity ($\alpha = 0.92$) and five items in factor Social Identity ($\alpha = 0.73$). Based on the Portuguese version of the Baller Identity Measurement Scale confirmatory factor analysis (see Supplementary material), we observed in the initial model (model 1) that eight items loaded into their factors with a magnitude greater than 0.70. Thus, two items were excluded (item 1 and 3) and the final model (model 2) achieved acceptable fit ($\chi^2 = 155.5$; Degrees of freedom = 13; Tucker–Lewis index = 0.91; Akaike information criterion = 18787.2; normed fit index = 0.96; root mean square error of approximation = 0.13; expected cross-validation index = 0.29; comparative fit index = 0.96; and goodness-of-fit index = 0.95). Root mean square error of approximation value suggests a poor fit; however, other absolute fit measures were satisfactory as well as incremental fit measures, supporting with credibility the acceptance of model 2.

The Portuguese version of the Student-Athletes' Motivation toward Sports and Academics Questionnaire was also translated in a pilot study, based on the Italian version (unpublished data). The Portuguese version for Brazilian and Portuguese student-athletes questionnaire is comprised of 29 items and a three-factor structure (Sport Motivation, SM; Academic Motivation, AM; and Career Motivation, CM) where participants state their level of agreement with the statements on a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The exploratory factor analysis (Kaiser normalization = 0.98) showed that 20 items grouped in factor Academic Motivation, six in factor Sport Motivation, and three in factor Career Motivation (see Supplementary material). An item was excluded (25) due to its low value. The Portuguese version of the Student-Athletes' Motivation toward Sports and Academics Questionnaire showed acceptable indicators in the confirmatory factor analysis

($\chi^2 = 2192.4$; Tucker–Lewis index = 0.90; Akaike information criterion = 66548.1; normed fit index = 0.90; root mean square error of approximation = 0.08; expected cross-validation index = 3.06; comparative fit index = 0.96; and goodness-of-fit index = 0.87) as well as all factor loadings higher than 0.70.

Multilevel regression and poststratification

The first step used with Bayesian multilevel regression and poststratification was to model individual scores as a function of individuals, group, or context characteristics, partially pooling individuals’ responses toward the group mean (Gelman & Hill, 2007). Hence, we estimated each student-athlete motivation toward sports and academics and identity as a function of his or her individual characteristics and university country (for individual i , with indexes $g, h, s, t, u,$ and c for gender, hours of training per week, student-athlete status, sports level, university type, and university country, respectively)

$$y_i = \beta^0 + \alpha_{g[i]}^{gender} + \alpha_{h[i]}^{hours\ of\ training} + \alpha_{s[i]}^{student-athlete\ status} + \alpha_{t[i]}^{sports\ level} + \alpha_{u[i]}^{university\ type} + \alpha_{c[i]}^{country}$$

The terms after the intercept are modeled as group effects (also referred to as random effects) drawn from normal distributions with variances to be estimated from the data

$$\begin{aligned} \alpha_{g[i]}^{gender} &\sim N(0, \sigma_{gender}^2), \quad \text{for } g = 1, 2 \\ \alpha_{h[i]}^{hours\ of\ training} &\sim N(0, \sigma_{hours\ of\ training}^2), \quad \text{for } h = 1, 2, 3 \\ \alpha_{s[i]}^{student-athlete\ status} &\sim N(0, \sigma_{student-athlete\ status}^2), \quad \text{for } s = 1, 2 \\ \alpha_{t[i]}^{sports\ level} &\sim N(0, \sigma_{sports\ level}^2), \quad \text{for } t = 1, 2 \\ \alpha_{u[i]}^{university\ type} &\sim N(0, \sigma_{university\ type}^2), \quad \text{for } k = 1, 2 \\ \alpha_{c[i]}^{country} &\sim N(0, \sigma_{country}^2), \quad \text{for } c = 1, 2 \end{aligned}$$

In the final step, we used the model estimates to predict the student-athletes’ motivation toward sports and academics, and identity variables for groups defined in a poststratification data set (i.e., gender, hours of training, student-athlete status, sports level university type, and country). The poststratification data set had an observation corresponding to each group defined for all combinations of the variables included in the model.

Estimations were made using Bayesian methods. Hence, we regularized the estimates using weakly informative prior distributions, normal prior (0, 10) for population-level effect (intercept) and normal priors (0, 1) for group-level effects, that is, the standard deviations of varying intercepts. We run two chains for 4000 iterations with a warm-up length of 1000 iterations to ensure convergence of the Markov chain. We inspected the trace plots to examine the convergence of Markov chains and used posterior predictive checks to validate our models (Gelman et al., 2013). Bayesian estimations were performed using the No-U-Turn Hamiltonian Monte Carlo sampler in Stan (Carpenter et al., 2017), obtained using brms package (Bürkner, 2017), available as a package in the R statistical language (R Core Team, 2018).

Results

First, we plotted the general estimates of student-athletes' identity (Figure 1) and motivation (Figure 2). Conditional on the data, the simulations based on our models indicate a substantial probability that student-athletes from Brazil

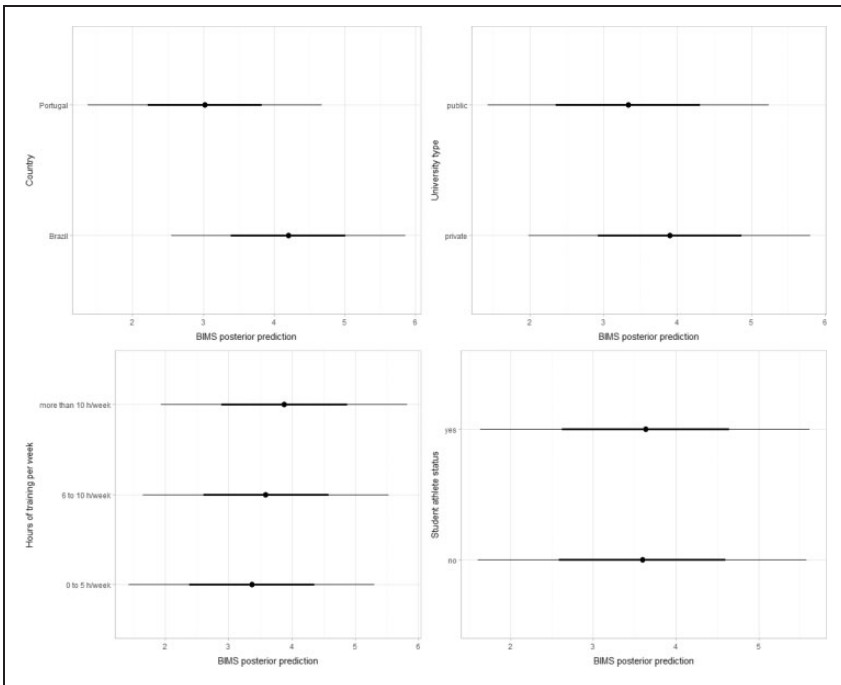


Figure 1. Posterior predictions of the BIMS in relation to the country, university type, training hours per week, and student-athlete status. BIMS: Baller Identity Measurement Scale.

present higher values of identity and motivation compared to Portuguese student-athletes. Furthermore, predictions suggest that the student-athletes from private universities and with more training hours per week have higher values of identity and motivation. There was no substantial variation in both identity and motivation indicators when considering student-athlete status.

Considering student-athletes' identity dimensions (Figures 3 and 4), data simulations suggest a substantial probability that student-athletes from Brazil present higher value for affectivity and student-athletes from private universities higher values of social identity. Student-athletes training more than 10 hours per week had higher values in both identity dimensions, but there was no variation when considering student-athletes' status.

Data predictions about student-athletes' motivation dimensions (Figures 5 to 7) indicate that Brazilian student-athletes presented higher scores for academic motivation. On the other hand, predictions suggest that Portuguese student-athletes showed higher values for student and career motivation. In addition, student-athletes enrolled in private universities presented higher values of sports motivation, and student-athletes enrolled in public universities had higher values

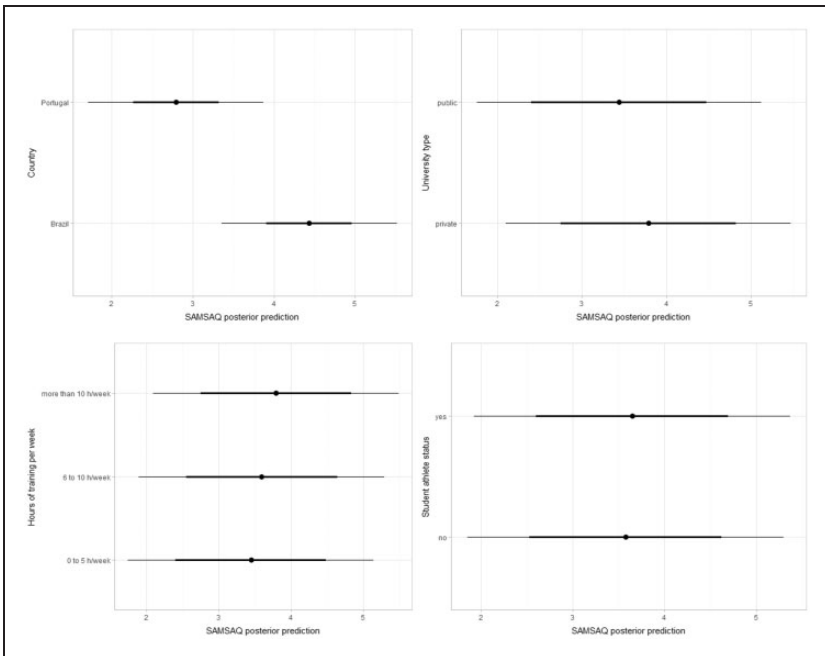


Figure 2. Posterior predictions of the SAMSQAQ in relation to the country, university type, training hours per week, and student-athlete status. SAMSQAQ: Student-Athletes' Motivation toward Sports and Academics Questionnaire.

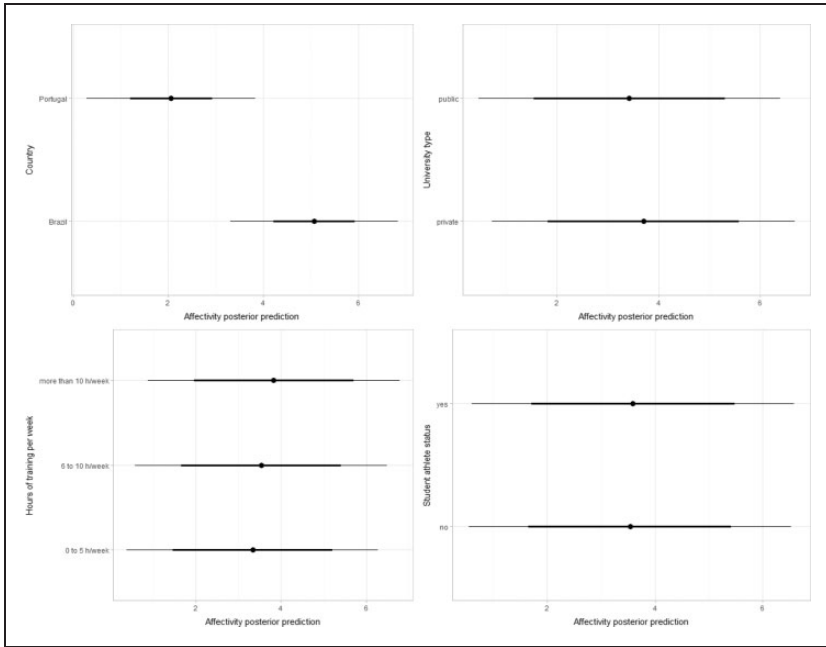


Figure 3. Posterior predictions of affectivity dimension of Baller Identity Measurement Scale in relation to the country, university type, training hours per week, and student-athlete status.

of career motivation. Student-athletes training more than 10 hours per week had a substantially higher score for sports motivation and career motivation than those training zero to five hours per week. There was no variation in the motivation indicators when considering student-athletes' status.

Discussion

Based on our knowledge, this is the first study to compare Brazil and Portugal in relation to student-athletes' dual careers. Additionally, multilevel regression and poststratification seem to be seldom used in sports science research. In this study, we estimated the variation of the student-athletes' identity and motivation between Brazilian and Portuguese student-athletes, accounting for gender, student-athletes status, sports level, training hours per week, university type, and country. We argue that in cross-cultural studies it is crucial to avoid a priori assumptions and to debate the topic a posteriori, with adequate analysis of the results. To assure the validity of our observations, we initially determined a cross-cultural validation of the Portuguese versions of the Baller Identity Measurement Scale and Student-Athletes' Motivation

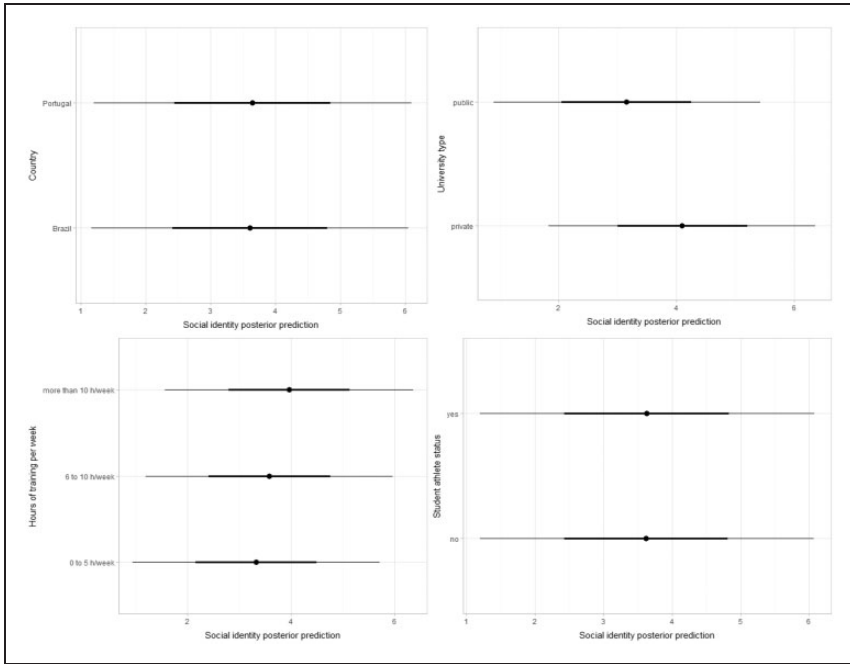


Figure 4. Posterior predictions of social identity dimension of Baller Identity Measurement Scale in relation to the country, university type, training hours per week, and student-athlete status.

toward Sports and Academics Questionnaire questionnaires. Overall, identity and motivation varied substantially between Brazilian and Portuguese student-athletes. Also, accounting for country-level variation, there was a substantial influence of student-athletes’ training hours per week and university type on student-athletes’ identity and motivation. There was no influence of student-athletes status on between-individual variation on the scores of identity and motivation.

The cross-cultural of the Portuguese version of the Baller Identity Measurement Scale presented a two-factor “Affectivity” and “Social Identity” structure, which is consistent with the Italian version of the Baller Identity Measurement Scale (Lupo et al., 2017a), but inconsistent with the four-factor of the original version (Harrison et al., 2010). Comparing the Portuguese Student-Athletes’ Motivation toward Sports and Academics Questionnaire factorial structure with the previous Italian version (Guidotti & Capranica, 2013; Lupo et al., 2017a), there was an almost full correspondence between items. However, differently from the four-factor model of the Italian version (Guidotti & Capranica, 2013), the Portuguese version of the Student-Athletes’

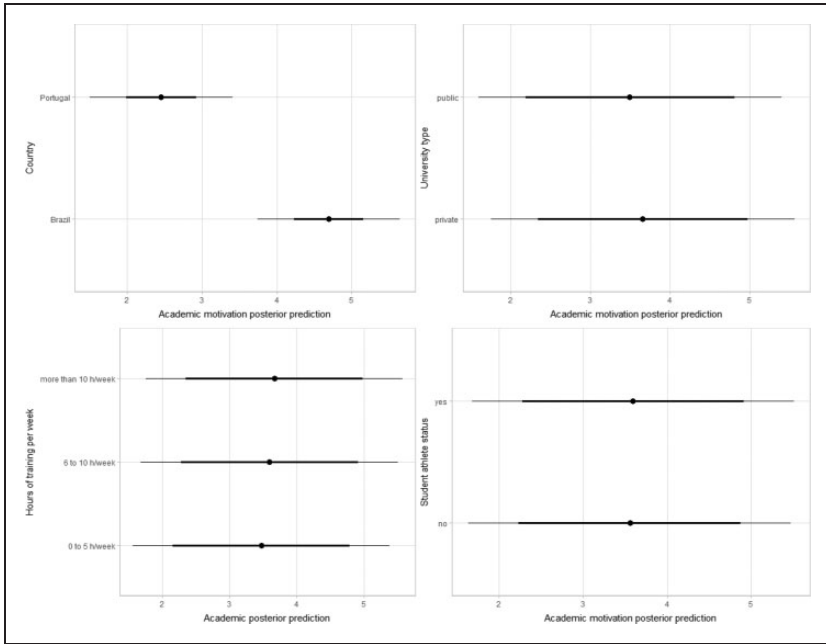


Figure 5. Posterior predictions of academic motivation dimension of the Student-Athletes' Motivation toward Sports and Academics Questionnaire in relation to the country, university type, training hours per week, and student-athlete status.

Motivation toward Sports and Academics Questionnaire presented a three-factor structure (i.e., Sport Motivation, Academic Motivation, and Career Motivation), which was consistent the factorial structure observed by Lupo et al. (2017a).

Our model predictions indicated a high probability of Brazilian student-athletes having higher values for affectivity and similar social identity compared to Portuguese student-athletes. Youth sports programs tend to be less structured in Brazil, as well as university sports in Brazilian universities are still in development. In Portugal, young athletes' development is deeply connected with the clubs and less school-based (Stambulova & Ryba, 2013) which can explain why the Portuguese population has lower levels of affectivity. Overall, Brazilian university contexts may provide more opportunities for sports participation, particularly allowing for students with different sport experience levels to be engaged in sports. Although the university organization models are different across countries, the student-athletes from both Brazilian and Portuguese universities have a similar trend of moderate to high values of social identity. These results suggest that student-athletes have a high sense of who they are

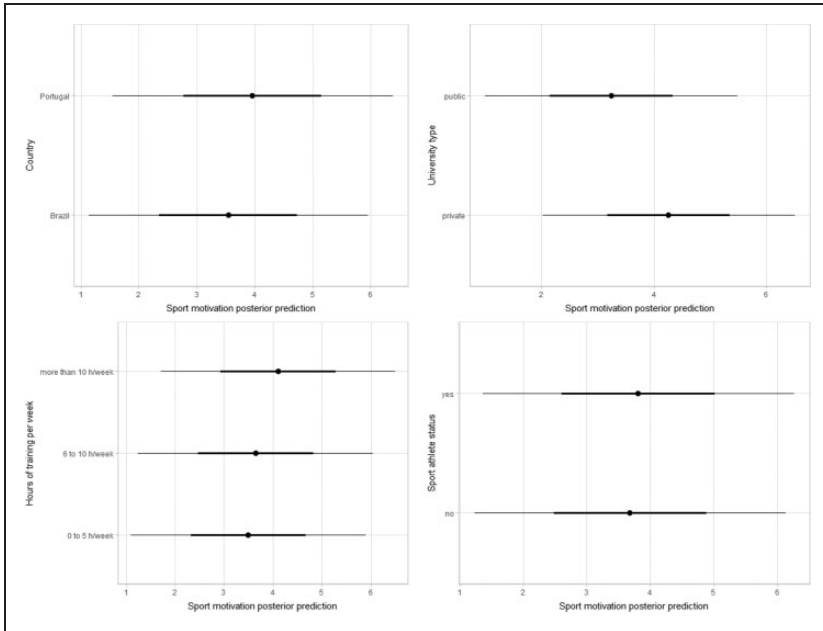


Figure 6. Posterior predictions of sports motivation dimension of the Student-Athletes' Motivation toward Sports and Academics Questionnaire in relation to the country, university type, training hours per week, and student-athlete status.

grounded in their sport participation, even within different university organizational models.

Our model predictions showed a trend of higher academic motivation for Brazilian student-athletes but showed higher sport motivation and career motivation among Portuguese student-athletes. In the Portuguese population, the academic motivation factor was where student-athletes appear to be less motivated compared to Brazil, suggesting the interest of Portuguese student-athletes in the development of sports as a professional career. Generally, athletes tend to abandon sports training because of competition, economic resources, or lack of support through the dual career (de Subijana, Barriopedro, & Sanz, 2015), and the dropout rate is higher at the university level. Overall, when comparing both countries, the results from Brazil may reflect the trend for European athletes to abandon sport and prioritize education in order to prepare for future job opportunities (Amara, Aquilina, & Henry, 2004). Also, it is worth noting that the competition level at university championships is often lower than sports federations' competitions, including mostly athletes at the amateur level. Although student-athletes from Portugal indicate higher values for sports motivation, Portuguese elite athletes enrolled in universities tend to have limited

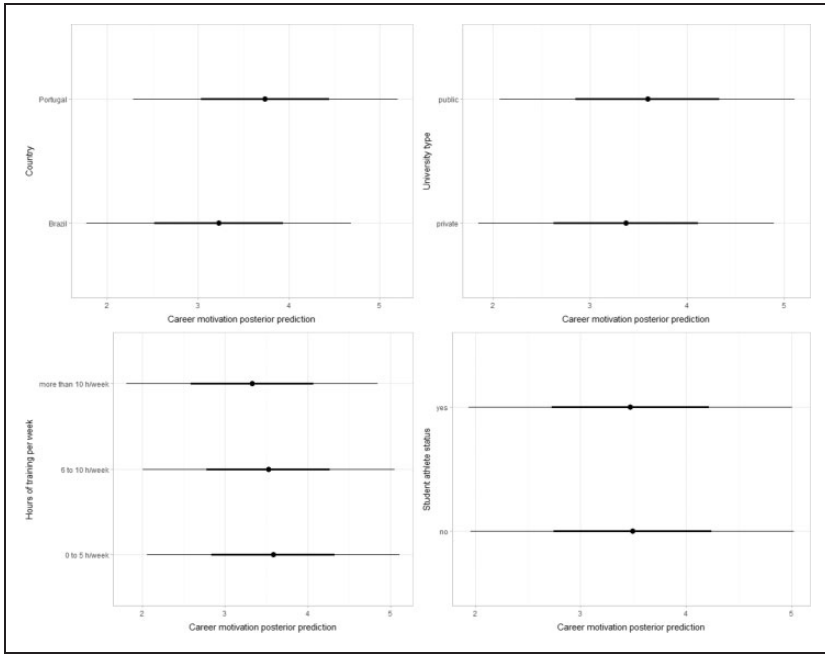


Figure 7. Posterior predictions of career motivation dimension of the Student-Athletes' Motivation toward Sports and Academics Questionnaire in relation to the country, university type, training hours per week, and student-athlete status.

participation in those sports events, in order to prevent injuries and not interfere with the elite sports performance. On the other hand, Brazilian state and national federation competitions have a different structure, which likely allows for athletes with a higher level of performance to compete in university competitions, particularly those enrolled in private universities.

In Portugal, the university sport system is coordinated by the Academic Sports University Federation (FADU). Hence, it is responsible for the organization of the annual university championships, alongside the student associations at each university or higher education institutes. Being part of that organization is a social stand and having an organized sport system is also part of a political strategy. In fact, the Portuguese student-athlete is likely motivated when is part of the organization, implying that the Portuguese student-athlete values the organization of the sport and the participation. This may partially explain the higher values of sports motivation within the Portuguese student-athletes. As for Brazil, the National Federation of University Sports organizes the university championships; however, the organization does not promote sports policies, and its activity is detached from the higher education

system. This disconnection between academic and sport systems, along with the ongoing development of the university system, both public and private, likely contributes to the student-athletes being significantly influenced by the sport context outside the university.

University contexts, private and public systems, are more diverse in Brazil than in Portugal. Nevertheless, public universities in Portugal have different policies and student-athlete status. It seems reasonable to assume that private universities are more likely to use sport as a self-promotion strategy to increase their attraction profile and media attention, aiming to bring profits to the university (Harrison et al., 2010) through the number of student-athletes enrolled in the university to get more attention from potential sponsors (Harrison et al., 2010).

Furthermore, private and public universities likely provide different facilities and support policies that may reflect on student-athletes' identity and motivation (Aquilina & Henry, 2010). Our predictions confirmed that student-athletes' identity and motivation toward sports and academics are influenced by university type. In particular, student-athletes from private universities tend to have higher values for affectivity, social identity, and sport motivation. On the other hand, if public university student-athletes presented higher values for career motivation, there was no variation by university type for academic motivation.

Based on the data, when considering training hours' predictions, student-athletes more committed with sport, that is, with more than 10 hours of training per week presented higher values for affectivity, social identity, and sport motivation. On the other hand, predictions suggested that student-athletes were less committed with sport participation (i.e., training zero to five hours per week) presented higher career motivation and similar values for academic motivation independent the number of training hours. Student-athletes may present higher values for affectivity and social identity due to their intense dedication and time spent on an activity (Coker-Cranney, Watson, Bernstein, Voelker, & Coakley, 2018) and their sense of belonging to a certain type of community (Culver & Trudel, 2008). Although their sport motivation is higher, the career and academic motivation are not, which indicates that the time of dedication on training might not keep those student-athletes in a long dual-career path, and they may choose one career over the other.

Lastly, our model predictions showed no variation in both the identity and motivation of Brazilian and Portuguese student-athletes when grouped by their student-athletes' status at each university. These results may reflect the lack of adequate support policies (national/government policies), and/or student-athlete status does not represent the truly student-athletes' necessities. Although it has been highlighted the need and importance of student-athletes' support policies (Aquilina & Henry, 2010; European Commission, 2012; European Parliament, 2015, 2017), currently available forms of national and local policies, that vary by country and institution, may not be sufficient to support a dual career.

The local legislation and policies likely have a major influence on the decisions and lifestyle of the student-athlete. The cultural context is intrinsically linked with the individuals' identity and can explain the variation of the identity and motivation levels. When analyzing the Brazilian and Portuguese university's context, it is possible to recognize how the local legislation affects the student-athlete. Regardless of the legislation, the way how the Higher Education Institutions apply the legislation and how the sport is organized has an impact on the daily life of the student-athlete and can affect their decisions and their choices when they need to move or to access education.

Not only for athletes is important having the possibility to develop academic careers in a high-level sports environment, but also it is one of the first factors that athletes have in mind when choosing a university (MacNamara & Collins, 2010). The challenges to combine a dual career are similar for student-athletes in different countries and universities. However, the understanding of how the student-athletes identify with their own reality and of how they face these challenges and conciliate the demands between sports and education has to be examined within the student-athletes' context (Aquilina, 2013; Stambulova & Ryba, 2013; Stambulova et al., 2015). Hence, new approaches to the context where the athletes develop their training (i.e., academic and athletic) are needed. Moreover, it is recognized that transnational studies and projects can play an important role in identifying the best practices to reduce the dropout rate of academic and sports career, promoting a successful reform of athletes and guiding governments, sport structures, and education institutions to make better decisions in the management of sports and education (Guidotti et al., 2015). We emphasize that the empirical nature of our research does not underestimate the complicated way that affects sport perceptions across states.

It is recognized the importance of cross-cultural studies, but the empirical effort to perform them is scarce. Our findings highlight the diverse ways in which student-athletes perceive their reality in the function of the cultural context, national policies, or university rules. The local ecologies seem to be more powerful than general legislation, and the generalization of specific good practices is always mediated by the institutions with their idiosyncrasies. It is crucial to compare the contexts and search for the decisive factors that shape the perceptions, beliefs, and expectations of student-athletes. That is the only way to design customized policies, rules, and other support decisions. Scholars, managers, and coaches should be aware of that.

Conclusion

To our knowledge, this is the first attempt to perform a comparative study about student-athletes' dual career between Brazil and Portugal as well as the first study in the sports science to use the Multilevel Regression and Poststratification. We established the reliability and validity of a cross-cultural

Portuguese Baller Identity Measurement Scale questionnaire and the Student-Athletes' Motivation toward Sports and Academics Questionnaire version, which provides a valuable instrument to understand student-athletes living in Portuguese-speaking countries. Therefore, we were able to estimate the variation among Brazilian and Portuguese university student-athletes' identity and motivation, also considering the influence of the type of university, training hours, and student-athletes status.

Overall, our model predictions show that cultural (country), academic (type of university), and sport (training hours) contexts play a considerable influence on student-athletes' identity and motivation. The present results highlight the need to consider the influence of individual-level and contextual-level influences on identity and motivation of the student-athlete, regardless of the student-athlete status. Hence, we illustrated in this study the use of multilevel modeling and poststratification as a flexible and robust framework to deal with different sources and levels of variation on the outcomes related to student-athletes. Our results highlight the need for caution when designing and applying policies at the country level and at the local level as they may have a major impact on the identity and motivation of the student-athlete. Cross-cultural studies of different contexts as well as in different populations (e.g., high-school) will be relevant to provide a baseline for policy improvements and allow to monitor their impact on both institution and student-athlete career.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: R. T. Q. was supported by a grant from the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.

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