

What is the Role of Psychosocial Factors for Talent Development in Sports?*

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ABSTRACT – Over the last decades, researchers have tried to comprehend how outstanding people develop their talents. However, in order to convert initial potential into high-performance achievement, it is required more than ability or technique. Studies have pointed out that psychosocial factors can favor or limit the development of talent in distinct domains. The purpose of this study was to analyze the role of psychosocial factors for talent development in sports. Four elite Brazilian athletes, two males, and two females were interviewed. Four categories emerged: Growth Mindset, Task Commitment, Opportunities Taken, and Social Support Usage. The role of psychosocial factors as catalysts for talent development was observed from the early stages of the participants' trajectory in sports.

KEYWORDS: talent, development, psychosocial factors, sports, athletes

Qual é o Papel dos Fatores Psicossociais no Desenvolvimento do Talento Esportivo?

RESUMO – Nas últimas décadas, pesquisadores têm tentado compreender como pessoas eminentes desenvolvem seus talentos. Contudo, para converter o potencial inicial em performance notável, é necessário mais do que habilidade ou técnica. Estudos têm apontado fatores psicossociais como favorecedores ou limitadores do desenvolvimento de talentos em domínios distintos. O objetivo deste estudo foi analisar o papel dos fatores psicossociais para o desenvolvimento do talento no esporte. Quatro atletas brasileiros de elite, dois homens e duas mulheres, foram entrevistados. Quatro categorias emergiram: Mentalidade de Crescimento, Compromisso com Tarefas, Aproveitamento de Oportunidades e Uso de Suporte Social. O papel de fatores psicossociais como catalisadores para o desenvolvimento de talentos foi identificado desde os estágios iniciais da trajetória dos participantes no esporte.

PALAVRAS-CHAVE: talento, desenvolvimento, fatores psicossociais, esportes, atletas

Talented athletes demonstrate superior technical abilities since the first stages of their developmental process, usually between late childhood and early adolescence. However, to convert initial potential into effective achievements during one's career peak, regardless of the talent domain, it is required more than technique. Many athletes and students recognized as gifted prodigies during earlier stages in their trajectories did not convert their initial potential into outstanding achievements in adulthood. Also, people who achieved eminence did not always have their abilities necessarily recognized during earlier stages (Subotnik & Rickoff, 2010). Among the factors that might contribute to foster or limit talent development, psychosocial factors (e.g., motivation, task commitment)

are quoted as relevant components in distinct domains (Dweck, 2014; Horn, 2018; Olszewski-Kubilius et al., 2016; Portenga, 2018; Renzulli, 2016; Worrell et al., 2018). The term psychosocial has been described as “the interrelation of individual psychological characteristics with social influences and to the ways in which these may shape or guide behaviors” (Gledhill et al., 2017, pp. 93–94).

The role of psychosocial factors for talent development has been the central core of the Talent Development Mega Model – TDMM, by Subotnik et al. (2011, 2019). According to this model, talent is the result of the interaction of biological, pedagogical, psychological, and psychosocial factors. Furthermore, talent is specific to domains of

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endeavor, typically manifested in actual outcomes, especially in adulthood, and relative not just to the ordinary but to the extraordinary. Searching to describe, among other aspects, who will actually be considered gifted in the long-term, the model points out it is almost consensual that, during childhood, some children portray more abilities than others, and that ability may indeed predict important outcomes. Nonetheless, it is not clear whether children's abilities can actually have a cause-effect relationship with future outstanding performance. Subotnik et al. (2019) advocate that in order to be called gifted during a career peek, someone identified (or not) as gifted over earlier stages must achieve great performances or productions during later stages. General ability is necessary but not enough to predict outstanding performance or creative productivity. Not only domain-specific abilities should be considered to explain high achievement, but psychosocial factors as well (Subotnik et al., 2011).

The TDMM suggests psychological sciences provide strong evidence-based studies about psychosocial factors, such as general and domain-specific ability, creativity, motivation, mindset, task commitment, passion, interest, opportunity, chance, and psychological strength, which are associated with talent development in different domains. These factors can favor or limit the development of talent in most distinct domains, like sports. Gaps in the development of psychosocial factors, such as lack of interest (Siegle et al., 2017) or having an unproductive goal orientation style (Øvretveit et al., 2019), might especially undermine one's possibility of achieving eminence (Paik et al., 2019). Studies have pointed out that underrepresented minorities and lower-income students are vulnerable to psychosocial factors such as a fixed mindset style, stereotypes, lack of opportunities, or social support (Horn, 2018; Kuusisto et al., 2017; Worrell et al., 2018). How to convert psychosocial factors barriers into enhancers in major competitive environments, such as in sports, is a question that needs to be addressed.

Psychosocial factors using talent development concepts in sports environments have been just recently investigated (Gledhill et al., 2017; Gledhill & Harwood, 2019). Opportunities, for example, do not simply happen to appear in athletes' lives, as a result of unintentional or accidental facts that triggered their occurrence. Access to those opportunities has been considered a fundamental psychosocial factor for talent development (Subotnik et al., 2011). Support from family and coaches is quoted as an important factor to help young athletes develop competencies that will be necessary in their trajectories (Portenga, 2019). Research conducted with young golfers pointed out that athletes tend to decide to develop their mastery only after having opportunities to get in love with sports, with coaches and family playing important roles in supporting them and stimulating this passion (Hayman et al., 2011). Taylor and Collins (2015) state that solid evidence reinforces the role of family members to provide substantial support in athletes' development.

Lack of social support has been pointed out as an undermining factor for talented athletes' aspirations in golf, for instance. Analyzing a golf development program that was not producing good results, Henriksen et al. (2014) indicated disorganized coaches, who did not care for psychosocial skills and only did the minimum necessary to keep their positions, as a possible explanation for the fact that the program was not being able to promote athletes' transition to higher professional levels.

Athletes' openness toward their own abilities also seems to be fundamental for talent development. Dweck (2014) signalizes an open mindset, which indicates one believes she or he can develop talents, is a powerful drive to develop competencies in any field. Shaw (2018) found out, in a study with 114 Canadian hockey players, correlations between growth mindset, athletes' openness to psychosocial interventions, and confidence in sport psychology. Goal orientation style is quoted as a determinant aspect of talented people's mentality to achieve success in their careers. Mastery-oriented athletes tend to focus on learning and constant evolution. Athletes with this type of mentality, which researchers indicate is highly associated with top performers, tend to face less pressure during tough moments, seeing failures as learning opportunities and victories as part of a developmental process. Øvretveit et al. (2019) studied 12 Brazilian jiu-jitsu fighters and found associations between mastery goal orientation and training effort, suggesting a mastery-oriented style may increase not only involvement during training but also long-term adherence to sports.

Interventions focusing on fostering psychosocial factors (e.g., stress control, growth mindset, psychological strength) are considered important differentiating factors in sports. Weinberg and Gould (2017) mention that coaches in some sports, such as tennis, see it from 80% to 90% as a mental game. Jones et al. (2002) interviewed 10 international-level athletes to find components associated with psychological strength development. Some of the most important characteristics were: great concentration, ability to handle pressure, desire, compatible lifestyle, technique under pressure, acceptance of the fact that anxiety is part of sports, knowledge to cope with stress, great capacity to deal with set-backs becoming stronger after them, a great belief they can make better than others, and a great belief they have the skills to achieve their goals. Psychologically strong people tend to control stress, emotions, thoughts, and behaviors under pressure and cope better with competitive situations that are present in careers. The skill is pointed out as especially crucial in career transitions (Subotnik et al., 2011; Worrell et al., 2016).

Over the last two decades, talent development researchers have been attracted by sports psychologists' methodologies (Worrell et al., 2016). Some of them have been suggesting investigations regarding the usage of sport psychology techniques to promote talent development in other fields

(Portenga, 2018; Wallace et al., 2017). It might be relevant to teach young people how to cope with competition across the academic domains, as people do in performance fields such as athletics, music, or dance, promoting forms to see the competitive stress as a challenge, not a threat (Dixson et al., 2016; Worrell et al., 2018). Likewise, the TDMM suggests it should be systematically done, since the earliest stage of talent development (Subotnik et al., 2011). Jamieson et al. (2016) evidenced this type of preparation might be positive in school environments. However, “there is a tremendous need for a theoretically grounded research agenda to examine the conditions and contexts that result in optimal

performance at the upper end of achievement across all domains” (Worrell et al., 2016, p. 268).

The purpose of this study was to analyze the role of psychosocial factors for talent development in sports, according to Brazilian elite athletes. It can offer insights: (a) to comprehend the importance of psychosocial factors for talented athletes’ development, (b) to reinforce the suitability of talent development frameworks to explain sports talent development, and (c) to consider the translation of knowledge associating psychosocial development and outstanding performances from sports venues to different milieus, as the academic.

METHOD

Participants

Four elite Brazilian athletes, two males and two females participated in this study. The inclusion criteria were being ranked at least once in the top 10 athletes in their continents and being specialized in individual sports modalities. We identified the participants by letter M for males and F for females, as much as by the numbers 1 and 2.

Male 1 (M1), 25 years old, started practicing when he was 8 years old. He is an Olympic finalist, a world champion, and broke a world record in 2016. During his childhood, he faced financial restrictions. At the age of 13, he decided to dedicate himself to sports, training for more than five hours a day. When he was 15 years old, he was given the opportunity to train in a team, which enabled him to run for a place in a Brazilian national team. He qualified, as a 15-year-old teenager, for the London Olympics in 2012. During the beginning of the psychosocial support program, in 2014, the athlete portrayed a lack of psychological routine. He got to his first Olympics Finals, 2016, and in 2017 he won the first individual major world championship gold medal.

Male 2 (M2), 30 years old, practiced different sports before choosing the sport he practices nowadays until he was at the age of 12. He took part in three Olympic Games. He is a world champion, a European champion, and an Olympic finalist. He had financial difficulties to develop his career. M2 took part in the Olympic Games in Beijing 2008, when he was 19 years old, and obtained excellent results. Despite the prominence in this competition and the good results at the London Olympics, 2012, he felt he needed to invest in his psychological preparation, in order to cope better with pressure at the Olympic Games to be held in Rio de Janeiro in 2016. During the Rio Olympic Games, he obtained the results he wanted. In 2017, he won the first major world championship gold medal.

Female 1 (F1), 28 years old, has been engaged in sports since childhood (6 years old). She has portrayed great potential that attracted older experts’ attention, at a local

club at the beginning of her career. Facing socioeconomic disadvantages, she had to move to a big city to blossom. After moving to one of the biggest cities in Latin America, when she was at the age of 14, she started training in one of the best clubs on the continent. F1 represented Brazil in the Youth Olympics, in Singapore, when she was at the age of 17. She was ranked world top 9, as a juvenile, Youth Olympic also top 9, and the world’s top 16, as a professional. When she was 18 years old, she looked for psychosocial support training because she was facing competitive stress and not performing well. According to her, the club where she trained had a psychologist who did not provide individual sessions of psychosocial support training (PST) to athletes. She did not achieve her goal of participating in the Rio Olympic Games, despite having excellent results.

Female 2 (F2), 22 years old, was a precocious sports talent discovered at a local suburb club when she was 5 years old. She came from a non-privileged family, in terms of socioeconomic status. When she was at the age of 9 she was given the chance to play at a club where she developed her international potential, which was helpful in her trajectory. As a juvenile, F2 was ranked the number 1 athlete in Brazil, and one of the top 10 athletes in Latin America. When she was 14 years old, she looked for PST for having panic attacks during competitions. She had expressive international results but did not have substantial financial incentives, which led her to choose to play at college level in the United States. Nowadays she is 22 years old and is close to obtaining her college degree. She intends to be a sports coach. Despite her efforts to have a career as a coach, she revealed she keeps planning to reach a professional career as a sportswoman.

Instruments

We used a semi-structured interview to collect data regarding the role of psychosocial factors in the athletes’ trajectories in sports. The protocol was developed based on research on talent development and sports psychology

(Gledhill et al., 2017; Subotnik et al., 2011): Can you tell me the most important moments in your trajectory in sports? What were the factors that contributed most to your talent development? Can you describe them in detail? Who were the most relevant people that helped in the process? How did they do that? What were your highest sports competitive achievements? Describe those competitions in detail and how you qualified for them. What were the greatest challenges you faced in your trajectory? Would you describe each one? Is there something else you think would contribute to explaining how you developed your talents?

The choice for semi-structured interviews is fully grounded on the assumption that people understand reality based on their own values, and individual beliefs. The best people to describe eminent athletes' roads to eminence are eminent athletes themselves (or at least athletes that got to a high expertise level). They know best each step they took since childhood to develop their psychosocial, physical, and technical skills. They have the full authority to describe their opportunities, support (or its lack), passions, interests, goals, accomplishments, and setbacks over their trajectories. Researchers have been stressing that one of the advantages of conducting interventions based on biographical narratives is that they generate opportunities to identify individual singularities, especially in research with small samples (Prado, 2018).

Procedures

The four athletes were chosen based on the inclusion criteria. However, a convenience sample was used. After inviting each athlete who met the research criteria, the research sent an invitation letter by email to the athletes, asking them about their interest and availability to participate in the study. All four agreed to contribute to the research. Then, an appointment was made to conduct the interviews.

The analysis of the interviews generated four categories associated with psychosocial factors for sports talent development: (a) Growth Mindset, (b) Task Commitment, (c) Opportunities Taken, and (d) Social Support Usage.

Growth Mindset

It reflects people's beliefs regarding their own possibilities to develop psychosocial and technical abilities, it may affect how they see errors and success. A growth mindset is considered a powerful enhancing psychosocial factor for talent development and involves two subcategories: Ability Development Beliefs and Optimal Perception of Mistakes. All four elite athletes demonstrated they believed in their talent development potential since earlier stages, portraying,

F2 asked to answer the protocol questions online, via Skype, as she was in the United States. M1, M2, and F1 were interviewed face to face in São Paulo either in a sports club or at a private office. Each interview lasted approximately 1 hour with each athlete and was audio-recorded and fully transcribed. The study was approved by the Social and Human Sciences Research Ethics Committee at the University of Brasilia and followed the recommended procedures for data collection.

Data Analysis

This study used systematic readings during the process and a codifying system in order to develop a theory on the role of psychosocial factors for talented athletes' development (Corbin & Strauss, 2008). The analysis was conducted in three types of data coding derived from athletes' discourse: open coding, axial coding, and selective coding. During the open coding phase, concepts were developed through data examination and comparison, in order to identify similarities and discrepancies. Afterward, categories and subcategories were grouped based on similarities. The labeling and usage of sentences were done in order to clarify the principal aspects of each concept during further steps. Later, this research identified components that were evident in each theme and established a relationship between them (axial codification). This interaction was scrutinized by questions such as: when it occurs, where it occurs, why it occurs, who causes it, and what the consequences are. Subsequently, during the selective coding phase, emerging categories were integrated and organized around a central explanatory concept. Coding was submitted to three experts with Ph.D. in sports psychology, physical education, and talent development for analysis. After considering the inclusion and exclusion of the proposed aspects and refining some concepts, the conceptual framework was delineated.

RESULTS

for instance, great ability to trust they might accomplish achievements in times of transitions and rely on their technical and psychological evolution. Additionally, according to the participants, they not only considered that they could develop psychosocial and technical skills but also displayed the ability to convert mistakes in their preparations into opportunities to learn useful skills that might mitigate their weaknesses.

Ability Development Beliefs

An important common characteristic of the four athletes is that all of them trusted they could evolve and learn to develop their talents up to eminent levels. F2 revealed that when she was 12 years old she realized her potential: "I saw that I had the potential to be among the best players, for sure, and I really wanted to be among the pros" (F2). F1 stated that she

always believed she could make it to the Youth Olympics, and she actually qualified for it, even knowing the task would be very difficult. M1 revealed positive beliefs regarding the development of his abilities since childhood, reinforcing his openness to develop skills, especially highlighting his desire to learn and develop psychosocial factors. Similarly, M2 revealed he was open to constantly developing abilities: “Every time my coach mentions I should do something better, I’ve probably already thought about it before. I normally try to discover what to do to fix my performance before being warned to do so” (M2).

Participating in an adult championship gave me the chance to qualify for the World Cup’s national adult team. I was very young, and thought, “Oh how cool!”. I was aiming at the Youth Olympics. They were the 1st Youth Olympics ever and I thought I had the skills to qualify for the competition, even though I knew I was far away from it. But I always believed that I could do it. (F1)

Optimal Perception of Mistakes

This subcategory describes how athletes handled mistakes and converted them into opportunities to learn aspects that would support them to increase performance. Noteworthy, M2 and F1 stated, in a similar way, their lack of trustful psychosocial tools and routines, during key competitions, as an error in their previous preparations. They saw those errors as indicators that they should get better prepared and learn PST tools to handle pressure and develop routines, converting those mistakes in their preparations into learning opportunities. F2 used her panic attacks as an opportunity to look for psychosocial support. According to M1, his lack of psychological routines in previous training sessions and competitions was replaced by constant mental routines, especially when wanting to fix a new movement: “I didn’t have this mental discipline before. Now, when I feel I need to improve a movement that is not OK, I visualize it!” (M1). Athlete M2 reported that a bad experience, during the London Olympics, in 2012, fomented him to look for psychosocial support training (PST) to be psychologically strong in Rio 2016.

After London, I talked to the psychologist: “If today I were to compete in Rio 2016, I would despair. London did not do me any good!”. I asked him to prepare me, to pressure on, I wanted to be stronger. (M2)

F1 reported mistakes for training extra hours earlier in the year to reach the Youth Olympics. She revealed changing all her training systems in six months, having to learn how to cope with new routines to qualify for her dreamed competition.

I started training earlier that year and started an overtraining process. Then, they [coaches] changed all my training and I had to learn how to train in a totally different way. My training was adapted and I had my Olympics Youth qualifiers at the end of the year, my dream so far. I had to do well. And I swam very well. (F1)

Task Commitment

Task commitment is considered a fundamental psychosocial contributor in several talent development conceptual models, which was present in the report of all four athletes when describing their trajectories. F1 portrayed task commitment, struggling to follow her dreams and to convince her mother and father to move to a megalopolis so that she could train at a major international club. She also faced anxiety and a tough lifestyle in a big city to keep practicing sports and increase her level over years. F2 mentioned her great task commitment by keeping training well, and studying hard, simultaneously, while facing constant financial difficulties. She arrived in the United States having the conditions to pass the college admission exams and still win every single match she had during her first semester in college. M1 also demonstrated task commitment by facing daily challenges to reach the training venue, as well as by being ready to deal with any challenges that may still arise. M2 revealed commitment in the pursuit of the sport that captivated him, from competition to competition, seeking to constantly challenge himself.

I went to train in one of the biggest clubs in the world, left the countryside, from my house, and went to live in the capital and train at this club at juvenile level. I was 14 years old. I started training there and kept studying. It was very tough because I was very young. I had to do it all by myself then, to solve everything, to live alone and my school was far away. My life was busy and training was my main goal. So, it was a very difficult time, because of my age and because I was far from my family. Then, business started to get more serious. Getting to the national team was always a dream for me. (F1)

I faced almost six hours of transportation a day to train for years. Bad installations...Poor food...With the psychological aspects well trained I can dribble these things. I don’t want to sleep on the floor and eat rocks before a major competition, of course, but these things are less important than psychological preparation. (M1)

Opportunities Taken

Opportunities Taken includes three subcategories: (a) Opportunity Identification, (b) Opportunities Converted Into Success, and (c) Striving for Happenstance. The first subcategory refers to events in which the participants had identified fundamental opportunities for developing their careers. The second one points out events when they dedicated themselves to converting the identified opportunities into

achievements. The third subcategory characterizes the efforts to be in the right place at the right time or how athletes struggled to effectively take those opportunities.

M1 mentioned the moment when he recognized and took the opportunity to join a club that led him to the national team: “At one point I had the chance to train in a club that could lead me to the national team. When I had the opportunity, I took advantage of it” (M1). M2 evidenced that he identified the opportunity he effectively took to reach the Beijing games, although he acknowledged that he only realized the real magnitude of what he was doing when he achieved a significant result in the finals.

In my only opportunity to participate in a qualifying competition for the Beijing Games (2008), I performed well. I have left this competition with a good contract signed and a high world ranking. So, I thought: “Now it’s good for me to keep competing”. Because of that, I got a college scholarship in England. Arriving in Beijing I was under no pressure. I competed in the first race and had an excellent result. When I saw the result, I thought: Wow! This is serious! (M2)

Social Support Usage

Social Support Usage describes how people can actually use the several kinds of social support that might be offered to them. It involves two subcategories: Social and Financial Support and Openness to Social Support, and they reflect whether athletes had financial, emotional or informational support from coaches, families, staff, and institutions. Different sources of social and financial support (from coaches, families, and sponsors, mainly) were fundamental to the athletes interviewed in this study. Additionally, they portrayed that they did not only accept this support but struggled to effectively use this support.

Social and Financial Support

The availability of social and financial support is considered a primary factor for talent development. Those aspects might seriously determine who will have the opportunities to develop potentials into actual eminence. During earlier stages, all four athletes counted on expert coaches, who identified their talents and supported their transitions to upper-level clubs, providing useful informational support. Support from their families, especially over earlier stages was fundamental in different narratives.

My mother always helped me in the process. She raised me. When I was sick, she was the one who took me to the hospital. Since I was born, I was raised by my mother. I began to have greater contact with my father from 11 years old on, as he lived in another city. (M1)

Notably, F2 did not have enough financial support yet to make a transition from expertise to eminence and decided to dedicate herself to college, where she can nowadays keep

training, not at a professional level, but as close to the level as she can. She revealed that family support was instrumental in the process. When she was a child, she was trained by her brother on several occasions. Further, F2 revealed having received a diagnostic of epilepsy. Her mother was a pharmacist and did not agree to see her daughter being medicated for something that both believed could be related to stress. She and her mother believed that the stress could be managed with psychosocial support training to solve her problems.

The only thing that stopped me was the financial issue, unfortunately. I didn’t get much help, much financial support... Before I started working with the psychologist, I have had some panic attacks and some doctors thought I was epileptic. I did all the possible exams. My mom didn’t think it was good for me to take that dose of medicine. My mother is a pharmacist and influenced me to look for psychological treatment. No medicines! (F2)

M2 stated that at the beginning of his career he also faced financial restrictions, highlighting the supportive role of his father in the process: “It was hard for my father to pay for the costs of my travels and competition equipment. My father had two jobs to support the family and keep me competing. Very expensive!” (M2).

Openness to Social Support

Besides having support, people should accept that support to develop their talents to achieve eminent levels of performance. All four athletes revealed great openness to social support since childhood. All of them were identified in local clubs and counted with coaches that encouraged them to go to stronger teams to develop their talents. M1 and M2 have revealed an open attitude toward different sources of support throughout their careers. Both reported their relationships with the head coach as very positive and revealed constant proneness to listen to trustworthy sources of information, as staff, and take their advice as guiding clues for their development. M1 said: “I trust my coach! Very much. I have a very good relationship with him.” (M1). Convergenly, M2 narrated: I always had a very good relationship with the current coach, regardless of the psychological work, which helped me as well. But, I have an excellent relationship with my coach! I communicate well with him”. F2 described accepting the opportunity to train at a big club as a fundamental step to develop her skills and aspirations.

Two boys used to train with me. Their father picked them up to train them separately. And then he invited me and said: “I will train my children to go further”. I accepted it and wanted to go. He arranged for me to swim for a club near my city, so we could start the first harder competitions. I had already competed for my city in a younger category. At this time, we were already registered in the children’s federated category. I went to regional competitions, started to stand out, and started to win. I grew up. And we [the athletes] always followed his point of view: “Now we will go for the next step. There is no structure to evolve here. We will look for bigger clubs”. (F1)

DISCUSSION

This study investigated the role of psychosocial factors for the talent development of Brazilian elite athletes. The Talent Development Mega Model – TDMM (Subotnik et al., 2011, 2019; Subotnik & Rickoff, 2010), which highlights the relevance of psychosocial factors and psychosocial support as important components of talent development, provided the framework for the research. Concerning the results related to psychosocial factors associated with talent development in sports, the four categories generated in this study are pointed out in the TDMM (Subotnik et al., 2011): Growth Mindset, Task Commitment, Opportunities Taken, and Social Support Usage. The relevance of those factors converges with studies published in the last decade that reinforce the decisive role of psychosocial factors regarding the talent development or inhibition of people in different fields (Dixson et al., 2016; Dweck, 2014; Gledhill et al., 2017; Horn, 2018; Jamieson et al., 2016; Prado, 2018; Portenga, 2018, 2019; Schroder et al., 2017).

This study has observed athletes' positive beliefs about the possibility of improving their skills and performance, with commitment and engagement, even under difficult conditions. Besides, the athletes recognized they needed to strive to develop those skills to get better prepared during their careers. This attitude reflects the growth mindset skill (Dweck, 2014). People face constant obstacles during careers that tend to be sequentially harder in terms of technical, psychological, physical, and financial demands. The recognition that it is possible to develop the necessary skills to overcome those obstacles seems to broaden people's possibilities to develop talents in different fields (Portenga, 2018). Research indicates that a growth mindset is associated with resilience in sports (Albert et al., 2019) and academic fields (Kuusisto et al., 2017). Athletes' development to the top 10 continental rankings was associated with beliefs that they could and had to develop technical, physical, and psychosocial skills that helped them to advance to elite levels. The athletes' beliefs that they could develop their capacities to evolve were associated with the excellent levels they achieved during their journeys (Shaw, 2018).

Also, in this study, athletes portrayed constant promptness to convert mistakes (e.g., in training and psychological preparation) into learning opportunities. Athletes' narratives revealed they gave importance to aspects that were consciously scrutinized. After analyzing mistakes, athletes seemed eager to change aspects such as training systems and mental routines. Those attitudes highlight another central characteristic of people with a growth mindset: a personal openness to convert aspects perceived as setbacks and mistakes into opportunities so that one can learn tools to cope with those potential problems (Dweck, 2014; Øvretveit et al., 2019).

Recent studies have compared the neurological activity of adults that have a growth mindset style with ones that

have a fixed mindset style (Mangels et al., 2006; Schroder et al., 2017). In one of those studies, fixed and open mindset students answered some questions, followed by instructions about how to respond to the incorrect ones (Mangels et al., 2006). Brain activity patterns evidenced that people with a growth mindset demonstrated higher left-temporal activity for longer periods of time during those instructions. In a posterior surprise retest with the same individuals, results revealed the better performance of the growth mindset adults' group, compared to the fixed mindset group, while answering the same questions. Schroder et al. (2017) state that those studies revealed people with fixed mindset styles tended to show attentional disengagement patterns after 250ms, something that could explain their post-error poor performance compared to growth mindset individuals. Those findings seem to converge with the ones of the present study as interviewed athletes had a positive attitude toward mistakes. Instead of seeing errors as potential barriers they seemed challenged to spend several hours to learn the necessary skills to cope with them.

The participants of this study have used great energy not only to deal with problems but also to develop their physical and technical skills. Their perseverance and hard work were described in the psychosocial factor named Task Commitment. The factor has been historically cited as a central contributor to talented people's development by different conceptual models (Renzulli, 2016; Subotnik et al., 2011). In sports, the factor was also considered as a relevant contributor to talent development. For example, studies have pointed out that task commitment is a fundamental psychosocial contributor to athletes' talent development in soccer (Gledhill et al., 2017; Gledhill & Harwood, 2019; Holt & Dunn, 2004). Similarly, athletes in the present study demonstrated hard work and commitment during all stages in their careers. The sports field tends to be over-competitive since the first stages of development and its peak is normally achieved during adolescence or early adulthood. Therefore, it seems reasonable to infer that efforts are ubiquitous in sports contexts in order to meet the demands of a career that requires several hours of physical, technical, and psychosocial training since childhood, as proposed by Jayanthi et al. (2013).

The emergence of the Opportunities Taken factor highlights one of the most critical aspects to predict talent development, as without opportunities people might simply not have the appropriate conditions to develop their talents. Opportunities play a relevant role for talented people in different stages and domains, sometimes enhancing their possibilities of developing their talents, other times diminishing these possibilities (Worrell et al., 2018). For instance, in sports careers, which tend to have an earlier peak, opportunities to take part in good teams must be soon and properly identified and used by athletes to develop technique and competence during earlier stages. According

to Horn (2018), the availability of opportunities is essential to enhance the likelihood that eminence occurs. Notably, the TDMM (Subotnik et al., 2011) suggests that opportunities are relevant for talented people since earlier stages. The authors of the model also indicate that during expertise and eminent stages fewer opportunities are available. Therefore, talented athletes should struggle harder for opportunities to be in the best clubs or national teams that could offer the best conditions for talent development to eminence in sports contexts. Subotnik et al. (2011) point out that biographies of eminent athletes and Nobel Prize winners have revealed those people counted with great opportunities to develop their talents, especially from the point their talent was “discovered” and nurtured by institutional and financial support.

Opportunities did not simply happen to appear in athletes’ lives, as a result of unintentional or accidental facts that triggered their occurrence. The four athletes have consciously pursued their opportunities with great commitment and endurance. In fact, in order to effectively identify and convert opportunities into success, it seems important that talented people actively engage in getting to the right place at the right time (Renzulli, 2016), as described by the Striving for Happenstance subcategory that emerged in the present study. The TDMM’s framework (Subotnik et al., 2011) proposes that talented people should struggle to create conditions for opportunities to flourish, before using them. Biographies of elite athletes such as Venus and Serena Williams, Megan Rapinoe, Pelé, Roger Federer, Jesse Owens, and Haile Gebrselassie revealed that they had to struggle to identify and use opportunities, independent from their original socioeconomic status (Worrell et al., 2018). Athletes in the present study revealed, since earlier stages, not only the ability to identify and use opportunities but also the promptness to dedicate themselves to be in the right clubs, competitions, and colleges at the right time, in order to see the chances of developing their careers increase.

Social Support Usage was another main psychosocial factor that emerged in a consistent way in athletes’ development. Athletes revealed the ability to interact with different people in different situations, establishing solid relationships that could help them during their careers. According to Portenga (2019), parental support, coaches’ support, peer support, sponsorship, or mentoring from psychologists, older athletes, and other experienced personnel might play a significant role in molding youth sport behaviors during talented athletes’ development. Analyzing 73 articles related to social support usage in sports, from 1990 to 2013, Sheridan et al. (2014) pointed out that coaches were the most prevalent actors in providing athletes with social support “through offering unique forms of tangible, informational, emotional and esteem support” (p. 1). This result seems to converge with the present study findings. All the athletes in the present investigation were “discovered” in local clubs by coaches who nourished their talents and promoted their transitions to better-structured clubs. It seems reasonable

to say that the kind of support provided by coaches, who prepared athletes to transit to upper levels and achieve the top 10 continental rankings, is a relevant contributor to talent development in sports.

The participants mentioned parents as pivotal contributors to support athletes’ development. The athletes highlighted their families as providers of financial, emotional, and informational support. For Olszewski-Kubilius et al. (2016), parents have a special role in nurturing talents and might influence, for instance, young people to cultivate important psychosocial skills. Taylor and Collins (2015) also highlight the role of family support in the athletes’ development. In sports contexts, Hayman et al. (2011) reinforced that athletes’ passion for sports was in fact highly related to parental nourishment. Notably, the four athletes in the present study pointed out support from parents and coaches as contributing factors during their journeys. On the other hand, peers and psychologists were not mentioned as important sources of support. Athletes practiced individual sport modalities and that is a possible reason why they did not quote peers as highly contributing to developing their talents. The fact that athletes did not indicate psychologists as contributors to their talent development at earlier stages might be related to the fact that sport psychologists tend to work with athletes during stages in which psychological preparation is more accepted as a greater differential to predict performance: from expertise to eminence.

It is relevant to highlight that athletes’ openness to different sources of support was also a contributing factor to their talent development. They were avid for financial, informational, technical, and emotional support from different sources, in different stages of their careers. Portenga (2019) points out that a performer should be prone to accept social support and strive to use this support, as a prerequisite to achieving eminence. According to the author, athletes’ acceptance that they need something more than technique to evolve is usually accompanied by the recognition that they need qualified information from more experienced people to develop talents to ultimate levels. This recognition is correlated with a decision to engage (Subotnik et al., 2011). Athletes’ decision to engage is normally accompanied by openness to several sources of support, especially if one decides to transit from expertise to eminent levels. In the present study, all the athletes have portrayed constant openness to social support, since the first stages in their careers, accepting and striving for support from coaches, families, and sponsors in clubs and national teams.

It is important to draw attention to the fact that one of the female athletes did not have enough financial support from a great club or national team, something that made her move to a foreign country and that somehow delayed her evolution to eminent levels, up to this moment. Horn (2018) emphasizes support might be especially critical for a part of the population that comes from underrepresented or low-income groups. In this regard, relevant junctural

aspects present in Brazilian reality might undermine female athletes' talent flourishing in the Latin American country: (a) women are historically underrepresented in Brazilian sports contexts; (b) women's wages are lower than men's wages in the country, even while performing similar tasks; and (c) Brazil is one of the top 10 most unequal countries in the world, in terms of financial distribution (Proni & Proni, 2018). The reasons that impelled the athlete to look for better conditions to develop her talent out of Brazil probably might be correlated with environmental aspects such as lack of opportunities, financial inequalities, and gender underrepresentation in the country.

The findings of this study allow us to state that athletes are passionately involved with sports since their first developmental stages. Coaches and families foment their love for sports and support their transition from the initial level to competence. From this initial stage to competence, social support usage is an essential aspect to develop athletes' abilities. From competence to upper levels, psychosocial factors such as task commitment and the promptness to be ready to identify and use the most relevant opportunities in athletes' careers play a great role in talent development. Besides, athletes' beliefs that they can achieve higher levels of performance are important motivational aspects associated with a growth mindset during their development. That mindset is also related to athletes perceiving setbacks and errors as challenging learning opportunities and not as potential threats. The development of those psychosocial factors might support athletes to transit from competence to expertise. From expertise through eminence athletes generally recognize they need something more than technique to evolve. At this point in their careers, athletes get open to psychosocial support which might be provided by experts (e.g., sports psychologists, experienced athletes) to promote their psychosocial development.

This study has some limitations. The information obtained by the participants could be subject to memory selectivity bias. Also, the sample size of this study is insufficient to

explain the development of talents on a scale. Finally, a relevant limiter to investigate the road to eminence in athletes' trajectories derives from difficulties to predict who will become eminent in the long run. In this regard, it seems challenging to carry out classic longitudinal studies that are ideal to predict how one develops her or his potential from first stages to elite levels. Future investigations about the topic could contribute to the talent development and sports psychology fields: (a) conducting longitudinal studies to evaluate how psychosocial factors evolve in different phases of athletes' trajectories, (b) considering the role of gender in athletes' talent development from first stages to eminence, comparing women and men, (c) evaluating the associations between competition and outstanding performances/productions in different domains, and (d) studying the suitability of psychosocial assessment (by psychologists, mentors, and experienced personnel) to support people that should perform well in traditionally stressful conditions.

For Worrell et al. (2016), it is a great challenge to conduct studies about how psychology might produce knowledge in competitive contexts because people still have a negative view of competition. As suggested by Subotnik et al. (2011, 2019), academic environments, for example, are not traditionally focused on providing psychosocial support despite the influence of stressful situations on students' performance. On the other hand, sports are traditionally and culturally associated with psychological strength development and stress control to achieve outstanding levels of performance (Jones et al., 2020; Dixon et al., 2016; Subotnik et al., 2011; Wallace et al., 2017; Worrell et al., 2016). Therefore, it seems reasonable to investigate if knowledge derived from the investigation on elite athletes' development might contribute to explaining psychosocial development and outstanding performances in other domains. In this regard, the present study suggests that the four psychosocial factors observed here (growth mindset, task commitment, opportunities taken and social support) should be examined in further studies of high-performance and talent development.

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