From theory to practice: a study on coping effectiveness among young athletes

Mestrado em Psicologia do Desporto e Desenvolvimento Humano

Sergio Fragomeli
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Dissertação apresentada com vista à obtenção do grau de Mestre em Psicologia do Desporto e Desenvolvimento Humano, na especialidade Psicologia do Desporto e Performance, da Faculdade de Desporto da Universidade do Porto e da Escola de Ciências Humanas e Sociais da Universidade de Trás-os-Montes e Alto Douro, ao abrigo do Decreto-Lei nº 74/2006, de 24 de março, na redação dada pelo Decreto-Lei nº 65/2018 de 16 de agosto.

The present dissertation was developed in order to achieve the master's degree in Sports Psychology and Human Development, specialized in Sports and Performance Psychology, from Faculty of Sport, University of Porto and School of Human and Social Sciences from University of Trás-os-Montes and Alto Douro, according to the Decree-law nº74/2006 from March 24th, in the wording given by Decree-Law No. 65/2018 of August 16th.

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Dedicatória

À minha irmã e a Isabel,
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Contents

List of figures

Study 1

Study 2

List of tables

Study 1

Study 2

Abstract

Stress is increasingly becoming a central issue in sport. In recent years, the discussion about the impact of competitive sport on athletes' lives, the pressures they face and the stress they are exposed to on a daily basis from various sources has intensified. The fact that famous athletes from different sports have spoken publicly about their problems has influenced the public discussion and raised awareness about the mental health of top athletes, but also about the impact this can have on younger athletes who aspire to reach the highest level one day.
If young athletes learn the right tools at a young age to deal with the hardships and struggles that are part of any sport, they will be better able to cope more effectively with the stressors they face and therefore have a more enjoyable experience in sport.

The focus of the present dissertation is to explore the different aspects of coping effectiveness in sport as it has been discussed and researched so far (Study 1) and what are the best approaches to influence it positively (Study 2).

The first part of the dissertation aims to analyse what has been researched on this topic over the last two decades by conducting a systematic review of articles published on coping effectiveness in young athletes. The second study is an intervention conducted with five early adolescent football players (M = 11.02, SD = 0.30) playing for a Portuguese Primeira Liga club. The intervention programme consisted of six sessions that focused on different stressors and provided participants with strategies that could help them cope effectively with each situation.

Overall, these studies confirm a certain scarcity in terms of research in this area and the absence of some unifying principles that could lead to more substantial body of work and more in-depth conclusions. Another important point is that this type of intervention has a positive impact on the participating group and that the impact is best measured through a combination of quantitative data and direct observation.

Keywords: coping effectiveness; perceived stress; systematic review; early adolescent; intervention

Resumo

O stresse vem assumindo um lugar central no desporto. Nos últimos anos, intensificou-se a discussão sobre as consequências do desporto competitivo e do stress a que os atletas estão expostos. O facto de atletas famosos de diferentes desportos terem falado publicamente sobre os seus problemas influenciou a discussão pública sobre a saúde mental dos atletas de topo mas também sobre o impacto do stress nos atletas mais jovens que aspiram atingir o mais alto nível. Se os jovens atletas aprenderem desde cedo as ferramentas mais adequadas para lidar com as dificuldades que fazem parte de qualquer desporto, serão mais capazes de lidar de forma eficaz com os fatores de stress que enfrentam e, portanto, terão uma experiência desportiva mais agradável.

O foco da presente dissertação é explorar os diferentes aspetos da eficácia do coping no desporto tal como tem sido problematizado e investigado até agora (Estudo 1) e quais as melhores abordagens para influenciá-la positivamente (Estudo 2).

A primeira parte da dissertação tem como objetivo analisar o que tem sido investigado sobre este tema nas últimas duas décadas, através da realização de uma revisão sistemática de artigos publicados sobre a eficácia do coping em jovens atletas. O segundo estudo relata uma intervenção realizada com cinco jogadores de futebol adolescentes (idade M = 11,02, DP = 0,30) que jogam num clube português da Primeira Liga. O programa de intervenção consistiu em seis sessões focadas em diferentes fatores de stress com o objetivo de promover estratégias para lidar eficazmente com cada situação.

Globalmente, estes estudos confirmam uma certa escassez de investigação nesta área e a ausência de alguns princípios unificadores que possam conduzir a conclusões mais consistentes. Outro ponto importante é que este tipo de intervenção tem um impacto positivo no grupo participante e que o impacto é melhor medido através de uma combinação de dados quantitativos e qualitativos estes últimos obtidos através de autorrelato e observação.

Keywords: coping effectiveness; perceived stress; systematic review; early adolescent; intervention

General introduction

Stress is a human condition that everyone experiences at some point in their lives. Despite the assumption that children in school are healthy and well-adjusted, stress and its consequences are not unusual for them (Rew et al., 2012). Lazarus (1991) postulates that psychological stress is the transactional relationship between the individual and the environment (Lazarus & Folkman, 1984). The appraisal of the situation creates a response that depends on the assessment done by the individual. For example, under the same conditions, one person may react with anger while others may experience anxiety or guilt. (Lazarus & Folkman, 1984).

Considering that childhood and adolescence is a time of change and decision-making in areas such as school, career and peer groups (Boekaerts, 1996), as well as rapid physical, physiological, social, emotional and cognitive changes, this phase can be a very stressful time. Teenage athletes face specific stressors due to age in addition to the stressors that are already part of training and competing in sport. Reeves et al. (2009) reported a difference between early and middle adolescents in what is considered a cause of stress. Early adolescents worry more about making mistakes, opponents, team performance and family, while middle adolescents reported mistakes, team performance, coaches, selection, contracts, social evaluation and playing at a higher level. In another study by Nicholls & Polman (2007) on Under-18 rugby players what caused stress was again making an error (both physical and mental), being criticised by parents or the coaching staff, being injured and observing an opponent performing well. The pressure to perform well in front of coaches, peers and spectators can lead to fear of failure, which has been shown to increase stress, worry and anxiety in adolescent athletes and reduce motivation and self-perception (Sagar et al., 2009). Injuries can also bring high levels of stress, which can disrupt their competition schedule and progress in their discipline. Additionally, athletes tend to report a lower self-esteem due to the inability to perform at their best (Nipper et al., 2008).

An important resource that can help mitigate the development of chronic stress is coping. As it was defined by Lazarus & Folkman (1984, p. 141), coping is “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person”.

Coping strategies can help an individual regulate their emotions when facing a challenging situation (Jensen & Wrisberg, 2014). Athletes can use different coping strategies that can help them cope well and reduce stress (Nicholls & Polman, 2007). Coping in sport is

linked to optimal performance (Nicholls et al., 2016), long-term athlete motivation (Crocker, 2015), and overall, a higher level of mental wellbeing (Nicholls et al., 2016).

Increasing the number of coping strategies available to an individual can help improve the ability cope more effectively (Duhachek & Kelting, 2009). Coping strategies in sport refer to athletes' cognitive and behavioural efforts to deal with stressors, adversities and challenges they encounter in their sporting endeavours (Nicholls et al., 2009). One of the most widely accepted and used conceptualisations of coping is the distinction between problem-focused and emotion-focused coping proposed by Lazarus and Folkman (1984), where problem-focused coping aims to manage or change the cause of stress, whereas emotion-focused coping aims to regulate the emotional response caused by the stressor.

Regardless of the importance of defining and categorising the types of coping, the effectiveness associated with the use of coping strategies the main focus of researchers and practitioners.

When it comes to sport and competition, coping effectiveness is defined as "the extent to which a coping strategy, or combination of strategies, is successful in alleviating the negative emotions caused by stress" (Nicholls & Polman, 2007). Although coping and its effectiveness are a crucial aspect of an athlete's development, studies in this area are relatively scarce (e.g., Nicholls et al., 2005).

In order to provide a comprehensive overview of the effectiveness of coping and its effects, this dissertation consists of two separate studies. The first examines in a systematic review about what has been studied in the area of coping effectiveness in adolescent and young athletes. The second study presents a coping training programme conducted with a group of five early adolescent football players belonging to the football academy of a club in the Portuguese Primeira Liga. This study intended to evaluate the efficacy of psychological intervention training programmes directed at promoting coping effectiveness in these players.

Study 1

A systematic review of Coping Effectiveness in adolescent and young athletes

Abstract

Given the lack of studies focusing specifically focused on coping effectiveness, particularly in young athletes, this study intended to provide an overview of the literature about coping effectiveness in adolescent and young athletes. For this purpose, a systematic review of the literature was conducted. Four databases were used for the systematic review on this topic. A total of three hundred and forty-one articles were found in English, Portuguese and Spanish, published between 2000 and 2023. After screening and assessing the studies considering the eligibility criteria (i.e., focus on coping effectiveness, targeting adolescents, participation in competitive sport), 16 studies were included in the review. Qualitative studies tend to focus on the identification of stressors in competitive sport and the coping strategies used, whereas quantitative studies tend to focus on measuring the ability to cope effectively and the role of other variables in this process. Overall, this systematic review revealed a lack of theoretical background on coping effectiveness across studies. Given the relatively small number of studies produced over a period of more than two decades, further research is needed in this area, particularly with regard to developing more consistent and integrative theoretical models. In addition, studies should consider a mixed methods approach (combining qualitative and quantitative analyses) to better understand a concept as complex as coping effectiveness.

Keywords: coping effectiveness; systematic review; adolescent; young athletes

Resumo

A importância de compreender a eficácia das estratégias de coping em adolescentes e jovens atletas é crucial, uma vez que eles enfrentam desafios únicos, tanto em termos de desenvolvimento psicológico quanto de pressões competitivas. No entanto, até o momento, tem havido uma falta de estudos dedicados especificamente à avaliação da eficácia dessas estratégias. Nesse contexto, o presente estudo procura preencher essa lacuna ao oferecer uma visão geral da literatura sobre o tema da eficácia do coping em adolescentes e jovens atletas, através da revisão sistemática da literatura. Foram utilizadas quatro bases de dados para a identificação de trezentos e quarenta e um artigos em inglês, português e espanhol, publicados entre 2000 e 2023. Para triagem e avaliação dos estudos foram considerandos os critérios de elegibilidade específicos que incluíam o foco na eficácia do coping em adolescentes e a participação em desportos competitivos. Dezasseis estudos foram incluídos na revisão. Os estudos qualitativos direcionam sua atenção para a identificação dos fatores stress no desporto competitivo, bem como para as estratégias de coping adotadas pelos participantes. Por outro lado, os estudos quantitativos concentram-se predominantemente na avaliação quantitativa da capacidade de lidar eficazmente com esses desafios, além de explorar o papel desempenhado por outras variáveis nesse complexo processo. De forma geral, esta revisão sistemática destacou a falta de uniformidade na base teórica utilizada nos diversos estudos analisados em relação à eficácia do coping. Considerando o número relativamente limitado de estudos conduzidos ao longo de mais de duas décadas, parece evidente a necessidade de expandir a investigação nesta área, especialmente no que diz respeito ao desenvolvimento de modelos teóricos consistentes que integrem as diferentes perspetivas. Sugere-se ainda que estes estudos possam considerar uma abordagem de métodos mistos (combinando análises qualitativas e quantitativas) para melhor compreender um conceito tão complexo como a eficácia de coping.

Keywords: coping effectiveness; systematic review; adolescent; young athletes

Introduction

Although it is evident that children have not yet had as many experiences in life as adults, their perspectives on life events and experiences do show some stress and use of coping strategies. Children in the pre-adolescent phase are approaching puberty, a time of transition and development that influences how stressed they feel (Rew et al., 2012). Adolescence is an important period for the acquisition of a range of coping strategies available to individuals at this stage of their lives (Aldwin, 2007; Shulman et al. 1995). Teenage athletes face specific stressors due to age in addition to the stressors that are already part of training and competing in sport. This can increase stress and anxiety while reduce motivation and self-perception. (Sagar et al., 2009).

Among the various stressors, injuries can cause high levels of stress by halting athletes' competition schedules, disrupting athletes' progress and improvement, and leading to lower self-esteem as athletes are unable to perform at their best, as they report (Nipper et al., 2008). Also, the need to focus on their school duties together with sport practice can also increase the stress level and lead to burnout (Sorkkila et al., 2020). Parents play a crucial role in the life of any adolescent. For a young athlete, parental support, while comforting and motivating, can also lead to pressure to perform and unrealistic expectations. Bois et al. (2009) observed when they found that the presence of both parents during a competition led to a significant increase in precompetitive anxiety, which can then develop into burnout in some cases.

As shown by several studies, coping is a valuable mechanism that can be used to influence the effects of stress (Nicholls & Polman, 2007; Crocker, 2015; Nicholls et al., 2016). Coping refers to "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141), whereas coping effectiveness refers to the success of a coping strategy in overcoming demands that are appraised as demanding or representing a challenge (Lazarus & Folkman, 1984). As a result, techniques that successfully eliminate stress may be deemed effective, but coping that has minimal influence on stress reduction may be considered unsuccessful (Lazarus, 1999).

Coping, which entails intentional thoughts and behaviours to handle physically and mentally difficult conditions, is a crucial step in self-regulation. Increased effort, looking for social support, avoidance, wishful thinking, altering tactics, problem-solving, conflict, relaxation or arousal regulation, and planning are all typical coping mechanisms in sports. These and other

coping mechanisms are a part of an athlete's general capacity for self-regulation, which promotes successful adaptation in high performance athletics (Crocker et al., 2015).
While emotion-focused coping techniques address the emotional distress brought on by the stressful situation, problem-focused coping strategies aim to change the difficult condition. Other macro-level coping factors, however, have lately been proposed.

A stressful situation can be avoided by using behavioural (like removing oneself from the circumstance) and psychological (like cognitive distancing) coping strategies. Approach coping implies facing the source of stress and making an intentional effort to minimise it (options include taking direct action, exerting more effort, and planning). Appraisal-focused coping, which includes techniques like situation restructuring, entails reassessing a situation to reduce its significance (Nicholls & Polman, 2007).

At this point, it is important to distinguish between the different concepts studied in this area, as coping efficacy differs from coping efficacy and coping self-efficacy. Self-efficacy is the confidence a person has in their own ability to perform a required behaviour (Bandura, 1997). As explained by Chesney et al. (2006), coping self-efficacy is the belief that one can use certain coping strategies that directly affect one's ability to deal with certain stressors. In terms of coping effectiveness, it refers to the belief that a person who has already coped with a particular stressor will be able to cope with similar stressors in the future. It is the ability to personally lead to positive outcomes instead of relying on external events to have a positive outcome (Sandler et al., 2000).

Within this context, several models and theories of stress and coping have been developed and tested primarily on adults. According to Lazarus and Folkman's (1984) cognitive appraisal theory, stress was defined as a transaction between two systems (e.g., person and environment). People perceive or assess their transactions as harmful or challenging. Psychological stress happens when someone's assessment of a transaction is higher than their assessment of their available resources or coping skills. This theory holds that managing specific demands that are perceived as stressful requires a complex series of behavioural and cognitive reactions, which is what coping entails. Problem-focused coping, or techniques that concentrate on improving problematic parts of stressful situations, and emotion-focused coping, or techniques that concentrate on controlling emotional reactions to stressful events, are both types of coping. The degree to which a person assesses the situation as changeable or controllable, as opposed to unchanging or uncontrolled, and the degree to which a person chooses coping techniques that are appropriate in the stressful scenario, both influence the individual approach of the person.

Compas et al. (2001) pointed to the division of coping into three overarching dimensions: task-oriented coping (e.g., strategies that directly reduce stress, such as mental imagery), distraction-oriented coping (e.g., diverting attention to aspects unrelated to sport), and disengagement-oriented coping (e.g., halting the achievement of their personal objectives, namely venting or withdrawing from the activity).

The "fit" between the selected coping approach (problem-focused vs. emotion-focused) and the "changeability" of the stressful circumstance is what causes adaptive coping, according to Coping Effectiveness Training (CET) theory. Maladaptive coping happens when people employ problem-focused coping techniques to deal with unchangeable stressors or when they use emotion-focused coping techniques to deal with movable stressors. People exhibit greater psychological symptoms when there is a poor fit than when there is a better one (Chesney et al., 2003). Disengagement coping is usually considered ineffective, e.g., when athletes disengage from their goals, and is associated with lower psychological wellbeing (Nicholls, Levy, et al., 2016). Among some of the extreme adverse outcomes linked to ineffective coping in athletes are depression and burnout (Nixdorf, Frank, Hautzinger, & Beckmann, 2013). Both of which will have important and potentially serious psychosocial consequences for athletes, including reduced performance and wellbeing.

An athlete's ability to cope effectively with different stressors is a fundamental aspect of athletic performance and satisfaction. Athletes who have a good level of coping skills are better able to manage the challenges and stressors they face in their careers (Fletcher & Sarkar, 2012). Using the right coping strategies helps athletes regulate their arousal levels and enables them to stay in the optimal performance zone and avoid excessive anxiety (Hanin, 2007). The use of the correct strategies that can lead to cope effectively has been shown to have an impact on better performance and general well-being (Gaudreau et al., 2010).

As Fletcher & Sarkar (2012) have pointed out, another important aspect is the positive impact on their ability to foster resilience by being better prepared to recover from setbacks and failures and to "see" challenges as opportunities for growth. A very important aspect is the fact that athletes who were able to manage stress effectively are more likely to avoid burnout and stay in sport in the long term, as they experience sport as something positive and enjoyable (Hanton et al., 2013).

As a result of Nicholls and Polman (2007) literature review, emotion-focused coping has been reported to be more effective in situations in which the athlete has limited personal control, problem-focused coping has been proposed to be more effective during encounters in

which the athlete has the opportunity for personal control. And this has been identified as the goodness-of-fit model by Folkman (1992).

Although coping effectiveness appears to be a crucial aspect of an athlete's development, studies in this area with the younger population have only started to be performed in the last two decades. One of the first studies in this area had the aim of identifying the main stressors to which teenage golfers are exposed, the coping strategies they use and how effective they have been found to be. Results showed that rationalisation, reappraisal, blocking, positive self-talk, following a routine, breathing exercises, physical relaxation and social support were predominantly considered effective strategies. On the other hand, trying too hard, speeding up, changing routines and negative thinking were considered ineffective. (Nicholls et al., 2005). As young athletes also face additional challenges; due to this ever-changing and evolving environment, coping is influenced by the maturational processes that occur during this time (Compas et al. 2001). A study by Nicholls et al. (2014) also examined how maturity level affects the ability to cope and the effectiveness of the strategies adopted and showed that the different levels of maturity reached during adolescence can have an impact on the effectiveness of coping. In terms of interventions, there are only a few cases where a programme was applied with the aim of improving coping effectiveness among the study participants, and the success of the intervention varied, showing that there is still room for improvement in this area (e.g., Reeves et al. 2011; Tamminen, 2019; Cupples et al. 2021).

In a study conducted with Under-18 rugby union players, Nicholls et al. (2005) reported various coping strategies used by athletes. Blocking, increased concentration, refocusing on the task, visualisation, technical adjustments, practising, increased effort and self-talk were the most used strategies, which were reported by the players as both effective and ineffective depending on the situation. In addition, strategies classified as problem-oriented were used more frequently than emotion-oriented or avoidance strategies. In a later study among early and mid-adolescent football players, Nicholls et al. (2011) reported that the use of emotion-oriented strategies is more frequent early in adolescence, whereas later on the emphasis is on problem- and task-oriented strategies.

Given the lack of studies on coping efficacy and effectiveness, especially in young athletes, this study aims to assess what research has shown so far. To this end, a systematic review was carried out where the articles on coping effectiveness were searched systematically, a critically evaluated and synthesised. Based on the current literature, a set of relevant keywords was selected and the PRISMA method was applied to identify articles that are part of the literature review. These articles are quantitatively and qualitatively inspired and have

different theoretical backgrounds. They explore different factors related to the concept of coping effectiveness in young and adolescent athletes and will be presented in the next section. The results provide an overview of the current state of the art in this field.

Method

Eligibility criteria

This study intends to provide an overview of the current research on coping effectiveness and efficacy among young athletes participating in competitive sport. Thus, the a-priori-specified eligibility criteria encompassed: a) the inclusion of the topic of coping effectiveness or efficacy (yes/no); b) a sample of young athletes below the age of 18 and/or with a mean age below 18 years old; c) participation in competitive sports of any type; d) only peer-reviewed papers; e) and publication between 2000 and 2023 in English, Portuguese, or Spanish. In accordance with this, this study followed the procedures of a Systematic Review of the Literature (Moher et al., 2010), which included the following steps: 1) search strategy and selection of pertinent papers; 2) content evaluation of selected articles; 3) appraisal of the quality of the studies; 4) evidence summary; and 5) interpretation of the findings.

Search strategy and identification of relevant papers

The following combinations of keywords and Boolean operators were formulated according to the goals of the study: “coping*” AND “effectiveness*” AND “sports*” AND (“adolescents*” OR “children*” OR “teen*” OR “young people). The asterisks (*) were utilized to include all derivations of the root word (i.e., Teen* = Teenagers).

Four electronic databases were employed to provide a systematic approach for planning and carrying out an accountable and replicable identification of relevant scientific contributions: "Web of Science", "Scopus", "SPORTDiscus" and “EBSCOhost”. As shown in Figure 1 using the “PRISMA” flowchart, the selection process began by removing duplicates from the preliminary list of potentially relevant articles. These articles were then screened by source (peer-reviewed journals only), language and year of publication. The next step in the screening process was to review the abstract of each article (and the article itself, if needed), the topic of the articles, the age of the population sample used for the study and their involvement in competitive sport. In order to identify relevant papers from the selected articles that were not found in the electronic search, the snowball method was used to identify papers that were

eligible for review from the bibliographic references of the articles that were added to the database after screening. The selected articles were arranged in chronological order from 2000 to 2023, with titles arranged alphabetically where necessary and bibliographic codes assigned as shown in Table 1.

Quality appraisal of selected papers

Two authors independently assessed the quality of the selected papers using the techniques for qualitative investigations described in Hawker et al. (2002) and Lorenc et al. (2014). Specifically, nine appraisal questions (i.e., "Abstract and title", "Introduction and aims", "Method and data", "Sampling", "Data analysis", "Ethics and bias", "Results", "Transferability or generalizability", and "Implications and usefulness") were evaluated using a four-point Likert scale, which included: "good" (4 points) when information was comprehensive and clear; "fair" (3 points) when information was incomplete or imprecise; "poor" (2 points) when information was inadequate or unclear; or "very poor" (1 point) when relevant information was lacking (Table 3). Thus, total scores ranging from 9 to 36 points were evaluated as high (30-36 points), medium (24-29 points), and low (9-23 points), respectively (Lorenc et al., 2014).

Results

Screening process

The identification process (Figure 1) resulted in an initial database of 341 articles. After a careful removal of duplicates, the screening of the remaining 239 articles resulted in 200 articles fulfilling the first main criterion of being original research or reports published in peer-reviewed journals. A further screening excluding studies that have been done before the 2000 and that were not conducted in either English, Spanish or Portuguese, three more articles have been excluded. Afterwards, by checking the abstracts and the full texts of the articles, a last check was done to analyse if the articles dealt with the topic of coping effectiveness or efficacy, if the sampled athletes were below 18 years of age (or with a mean age bellow 18 years old) and if they took part in any type of competitive sports. Twelve articles were selected and from these articles a snowball search was carried out by checking all references in the bibliography of these articles, from which 4 more articles were selected and added. Sixteen articles were selected for final analysis and critical evaluation.

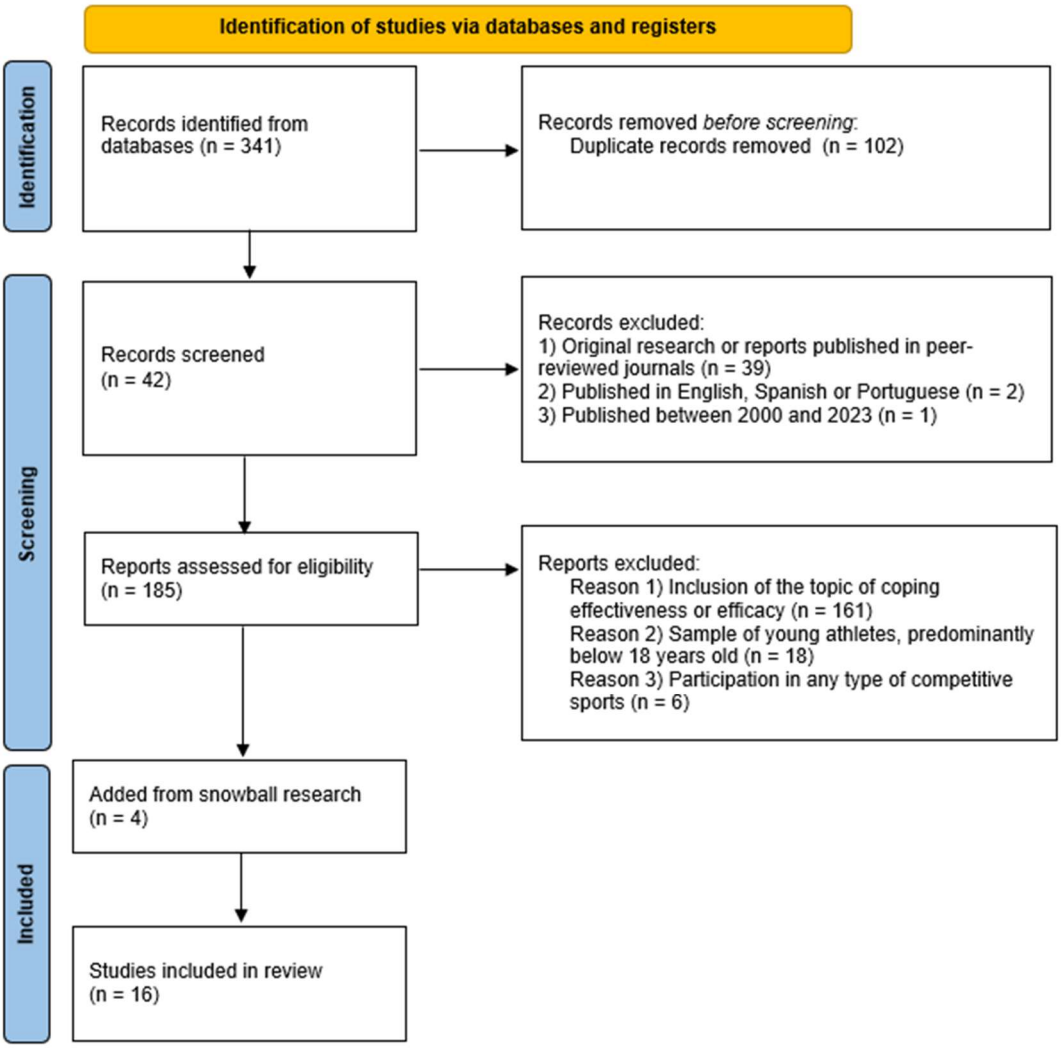


Fig 1. PRISMA diagram

Type of studies

Table 1 reports the characteristics of the final 16 selected scientific studies, with their relative bibliographical codes. Of these studies, six were empirical studies [codes: 1, 5, 8, 10, 11, 13] of which four were longitudinal [codes: 3, 6, 7, 12], four interventions [codes: 3, 9, 15, 16], and one case study [code: 14].

Data collection for coping effectiveness included interviews [codes: 1, 3, 6, 12, 14], semi-structured interviews [code: 12], diaries [codes: 2, 3, 6, 7, 12] workshops [code: 14], questionnaires with self-report measures [codes: 4, 5, 7, 8, 9, 10, 11, 13, 15, 16], and direct observation by the researchers [code: 14], respectively. In terms of type of sport, five studies included athletes from different sports [codes: 5, 8, 10, 11, 13], three were carried out with

football players [codes: 7, 9, 15], three were conducted on golfers [codes: 1, 2, 3], two with rugby players [codes: 4, 16], and one for the following types of sport: handball [code: 14], basketball [code: 6] and swimming [code: 12]. Ten of the studies were carried out on an only male sample, two on female and four of them were mixed.

Quality appraisal

The scores agreed by both were averaged to obtain a single final score. This resulted in an average score for all studies of 32.44, with 75% of the studies (12 out of 16) achieving an average final score between 32 and 36 points (i.e., good) and one other study just outside this category with 31 points. Two studies had a lower score of 28 and 27 points, respectively, and were still in the medium range. Therefore, none of the studies were excluded from the final analysis and critical appraisal.

Regarding the agreement between the authors' scores, the Kappa value was interpreted according to Cohen (1960) as follows: values ≤ 0 indicate no agreement, 0.01–0.20 as none to slight agreement, 0.21–0.40 as fair, 0.41– 0.60 moderate agreement, 0.61–0.80 substantial agreement and 0.81–1.00 near perfect agreement (McHugh, 2012). The final score was 0.78, indicating that there was a substantial agreement between the two authors in their assessment of the studies.

Narrative synthesis

Methodology and focus of the studies

In summarising the findings of this study, an initial finding revealed that six studies [codes: 1, 2, 3, 6, 12, 14] conducted a qualitative analysis of the data by analysing the results of diaries, interviews and workshops, eight studies used quantitative data collection [codes: 4, 5, 8, 9, 10, 11, 13, 15, 16] and two adopted a mixed approach involving both quantitative and qualitative measures [codes: 4, 7].

These studies focused on the identification of stressors and the coping strategies used, with participants self-assessing the degree of effectiveness of each strategy. Overall, while a particular strategy was generally considered effective, it may also be considered ineffective depending on the situation [code: 1].

Stressors and coping strategies

It should be noted that the types of stressors changed over the course of a season or simply by confronting different situations, and therefore require the use of different strategies depending on the needs of the moment [codes: 6, 12]. It should be remembered that several coping strategies were required [code: 2] and the more of them were used, the more likely they are to be effective [codes: 3, 4]. Regarding the categories of problem-focused and emotion focused strategies, two studies have shown that athletes are more inclined to use problems focused strategies [codes: 7, 14].

Data collection and analysis

The studies that took a mixed approach [codes: 4, 7] both opted to add a Likert scale to the daily diaries to be completed by the participants, which was also adopted by one of the quantitative studies [code: 5]. Among the quantitative studies, there seems to be a consensus in the use of the Coping Self-Efficacy Scale (CSES; Chesney et al., 2006), which was used in four studies [codes: 8, 9, 10, 11], while the Coping Effectiveness Scale (Gottlieb & Rooney, 2004) was used by three studies to measure coping effectiveness [codes: 13, 15, 16]. For the studies that are interventions and focus on measuring the success of the intervention [codes: 9, 16], the focus seems to be on how coping effectiveness is related to and influenced by other factors.

Findings and results

Mentally tougher athletes have shown higher self-efficacy and effectiveness in coping [codes: 8, 13], while another factor that seems to indicate higher levels of coping self-efficacy is emotional maturity or a general level of maturity reached in adolescence [codes: 10, 11]. Therefore, a closer look showed that pubertal status has a greater impact on coping effectiveness than chronological age [code: 5]. A final important factor contributing to coping effectiveness is parental autonomy support at a critical developmental stage, which can have a positive impact on the ability to cope effectively with the demands of the athletic life [code: 16].

Table 1

Summary of the Included Studies (in a Chronological Order), Including Authors and Year, Theoretical Background, Aim/Focus of the Study, Sample Characteristics, Measurement of Coping Efficacy/Effectiveness and Main Findings/Conclusions

Bibliography Code	Authors and Year	Theoretical background	Aim/focus of the study	Sample Characteristics	Measurement of coping efficacy/ effectiveness	Main Findings/Conclusions
1	Nicholls, Holt and Polman (2005)	The transactional process perspective: coping results from interactions between an individual's situational appraisal and emotional responses (Lazarus & Folkman, 1984; Lazarus, 1999).	Examine how international age-group golfers coped effectively and ineffectively during competition.	18 male Irish golfers aged between 14 and 21 years (M age = 17 years)	Semi-structured interviews/Qualitative analysis	Strategies associated with effective coping are rationalizing, reappraising, blocking, positive self-talk, following a routine, breathing exercises, physical relaxation, and seeking on-course social support. Strategies associated with ineffective coping are trying too hard, speeding up, routine changes, negative thoughts, and lack of coping).
2	Nicholls (2007)	Coping effectiveness determined by: - The goodness-of-fit approach (Folkman, 1984). - Automaticity of a coping response (Gould, Eklund, & Jackson, 1993a). - Coping strategy deployed (Bolger & Zuckerman, 1995).	Examine coping effectiveness over 28 days among a sample of international adolescent golfers.	5 Scottish golfers aged (*M* age 16.6 years)	Daily coping effectiveness diaries over a 28-day period during their competitive season	The effectiveness of coping strategies changes according to situational factors. Perceived controllability of the situations determines how effective a coping strategy is. Various strategies should be taught in order to be used depending on what is most appropriate at any given moment.

3	Nicholls (2007)	Transactional theory by Lazarus as dynamic process between stress and coping (Lazarus, 1999; Lazarus & Folkman, 1984)	Descriptively examine the experiences of an internationally ranked golfer during a training program for coping.	1 English golfer (age 16)	Daily diary logging the stressors, relative strategies and their level of effectiveness. Post intervention interviews.	The findings suggested that the participant adhered to effective coping strategies while also reducing his use of ineffective coping behaviours. Ineffective coping strategies were replaced with effective coping strategies. The coping strategies promoted in the intervention were subsequently deployed during competitive rounds, suggesting their suitability for use in competition. These were seen as allowing improved focus and led to fewer errors.
4	Nicholls and Polman (2007)	Several	Examine stressors experienced by international adolescent rugby union players, the coping strategies used and their perceived coping effectiveness during a 31-day study.	11 English rugby union players (*M* age = 17.9 years)	Daily diaries with an added Likert-type scale to measure coping effectiveness (Kim & Duda, 2003).	The mean coping effectiveness of the strategies deployed by the participants fluctuated during the study. The general decrease in coping effectiveness coincided with the deployment of fewer coping strategies. An increase in coping effectiveness was matched by an increase in the mean number of deployed coping strategies. This may indicate that coping effectiveness could be related to the number of coping strategies deployed.
5	Nicholls, Polman, Morley and Taylor (2009)	Coping as an adaptive process constrained by development: higher development means more effectiveness. (e.g., Compas et al., 2001; McCormick & Mathews, 2007).	Discover if athletes of different pubertal status, chronological age, and gender reported distinct coping strategies and coping effectiveness in response to stress during a competition.	527 athletes (male n = 322; female n = 205) aged between 11 and 19 years (*M* age = 13.77 years)	Modified Coping Inventory for Competitive Sport (CICS; Gaudreau & Blondin, 2002) adding a 5-point Likert-type scale to measure the perceived coping effectiveness of each strategy used.	The relationship between pubertal status and coping and coping effectiveness is different from the relationship between chronological age and coping and coping effectiveness. The effectiveness of the coping strategies deployed was influenced by pubertal status, but not chronological age.
6	Tamminen (2010)	Proactive coping framework which emphasizes the	Examine recurrent stressors and associated coping strategies and	13 female basketball players (*M* age = 16.0)	Pre- and post-season interview; audio diaries during the season.	Reported stressors changed during the season, which appeared to relate to the team's changing contextual demands. Coping strategies were applied

		individual's coping resources, the ability to recognize stressors, and elicitation of feedback in learning about past coping efforts. (Aspinwall & Taylor, 1997)	coping as a process over the course of a season.			according to the specific need and demand of the situation. Most athletes tended react to stressors rather than anticipate them.
7	Reeves, Nicholls and McKenna (2011)	Adolescence divided in 3 stages: early, middle and late. (Weiss and Bredemeier, 1983). Coping strategies vary according to the adolescence stage (Reeves et al., 2009).	Compare stressors and the perceived control of the stressors reported by early and middle adolescents over a season. Finally compare the coping strategies employed.	50 male soccer players aged between 12 and 18 years (*M* age = 14.48)	Daily diaries and a Likert scale to measure the perceived controllability of each stressor. Coping effectiveness scores were calculated for each coping theme.	Early and middle adolescents experienced mostly similar performance related stressors, with differences depending on the more professional and adult environment they are in. No difference in the perceived control over the stressor. Problem-focused strategies are more used by both groups.
8	Nicholls, Levy, Polman and Crust (2011)	Mental toughness is mediated to some extent by coping effectiveness (Clough et al., 2002; Jones et al., 2002, 2007)	Examine: (1) the relationship between mental toughness (MT) and coping self-efficacy (CSE), (2) the relationship between MT and coping effectiveness (CE), and (3) the extent to which MT and CSE predicted CE	206 athletes (male *n* = 182; female *n* = 24; *M* age = 17.75 years)	Coping Self-Efficacy Scale (CSES; Chesney et al., 2006) CE scale (Gottlieb and Rooney, 2004)	Most mentally tough athletes have higher levels of CSE and cope more effectively during sport. Furthermore, higher levels CSE and total MT resulted in higher CE scores.

9	Reeves, Nicholls and McKenna (2011)	The goodness-of-fit model: problem-focused coping for controllable stressors and emotion-focused strategies for uncontrollable stressors (Folkman, 1984).	The purpose of this study was to develop, implement, and evaluate the short-term effects of the CETASP intervention.	5 male soccer players aged between 13 and 14 years (*M* age = 13.6)	Coping self-efficacy scale (CSES; Chesney et al., 2006) Coping effectiveness scale (Gottlieb and Rooney 2004)	All participants' CSE score improved in response to the intervention. Partial support for the hypothesis that the intervention would improve CE. All participants reported some improvements. Immediate intervention effects could have resulted from an instant improvement in awareness of effective and ineffective coping and an understanding of the application of these via the goodness-of-fit model
10	Nicholls, Perry, Jones, Leigh, Morley and Carson (2013)	Coping relies on person's level of biological, social, cognitive, and emotional maturity; therefore, it changes during adolescence (Compas et al., 2001).	Assess a model, which included dispositional coping, coping effectiveness, and cognitive social maturity.	245 adolescent athletes (male n = 139, female n = 106) aged between 11 and 18 years (*M* age = 15.03, SD = 1.93)	Coping effectiveness scale (Gottlieb and Rooney 2004)	Coping is associated with the maturation that occurs across adolescence. Conscientiousness is the most important form of cognitive social maturity in relation to coping. In terms of coping effectiveness, distraction- and disengagement-oriented dispositional coping were negatively associated with how the athletes felt they were handling stress in their life, whereas dispositional task-oriented coping was associated with the perceived coping effectiveness.
11	Nicholls, Levy and Perry (2014)	N/A	Assessing a model that includes emotional maturity, dispositional coping, and coping effectiveness, predicting a direct effect from emotional maturity on coping effectiveness.	790 athletes (male n = 546, female n = 244), aged between 12 and 18 years (*M* age ¼ 15.34)	Coping effectiveness scale (Gottlieb and Rooney 2004)	Emotional maturity and task-oriented coping were associated, but emotional maturity and distraction- and disengagement-oriented coping were not. Task and disengagement-oriented coping were not associated with coping effectiveness. A significant negative association between distraction-oriented coping and coping effectiveness was observed. Finally, emotional maturity was positively associated with coping effectiveness.
12	Hayward, Knight and Mellalieu (2016)	N/A	Examine the individual and shared stress experiences among	4 female swimmers aged between 14 and 15 (*M* age=14.2)	Daily diaries and semi-structured interviews	Several coping strategies were employed by participants, with varying degrees of effectiveness, as the type of stressor and appraisal changed over time.

			youth swimmers, their mothers, and coach within the context of training, tapering, and competition.			
13	Cowden, Richard G. 2016	Emotional intelligence is liked to more effective coping (Laborde et al., 2014)	Examine the interrelationships between mental toughness (MT) and two constructs also linked to athletic performance, emotional intelligence (EI) and coping effectiveness.	151 adolescent male athletes (*M* age = 5.4 years)	Coping effectiveness scale (Gottlieb and Rooney 2004)	Mentally tougher athletes display more emotional control, while emotional intelligence could favour higher mental toughness. EI was a significant predictor of MT and the relationship between EI and coping effectiveness was fully mediated by MT.
14	Samuel, Stambulova and Ashkenazi (2019)	The cultural transition model identifying the developmental tasks throughout the transition phases and underlying psychological mechanisms facilitating cultural adaptation (Ryba, Stambulova, and Ronkainen, 2016).	Describe the transition of the Israeli men's U18 national handball team to train and compete in Germany for a competitive Season.	14 handball players (*M* age = 17.69 years)	Qualitative data sources included personal interviews, team workshops, observations, online texting communication and the assistant coach's final report.	Players varied in their conscious decision to change (i.e., apply all necessary adjustments) and coping effectiveness. The players mainly applied problem-focused coping strategies.
15	Tamminen (2019)	Parental support on teen athletes increases coping effectiveness (Tamminen & Holt,	Implement a coping workshop for youth athletes while engaging parents.	94 male athletes aged 10–15 years (*M* age = 13.13)	Coping Self-Efficacy Scale (Chesney, Neilands, Chambers, Taylor, & Folkman, 2006)	Coping self-efficacy was positively predicted by perceptions of autonomy support; increasing parental autonomy support and decreasing parental pressure is important for improving athletes' perceived stress and coping in sport.

		2012; Tamminen, Holt, & Crocker, 2012).				
16	Cupples, B O'Connor, D Cobley, S 2021	Junior-Senior performance level Transition (JST) to aid transition that brings (Stambulova, 2000).	Examine the effect of a stressor-coping intervention program on elite youth RL players transitioning into a high-performance environment.	41 rugby players developmental U20's (*n* = 21; M = 18.9) participated in the intervention; (n = 20; *M* age= 19.2)	CSE (Chesney et al., 2006)	The stressor audit identified team selection, injury, balancing work/study, and new high-performance environment adjustment as key stressors. Results showed positive outcomes from the intervention: enhanced frequency of task-based coping strategy use; disengagement-based coping strategy reductions; and increased efficacy for using problem and emotion-focused coping strategies. No effect for distraction orientated coping, social-support efficacy, and psychological well-being was apparent. The RL context stressor-coping intervention led to specific favourable coping responses, suggesting similar interventions may be beneficial for practitioners/organisations wanting to assist transition into high-performance environments.

Discussion

The main objectives of this review were to identify the theoretical models used to study coping effectiveness, to review the sports in which these studies were conducted, and the methods used.

Overall, the analysis of the studies has provided important findings regarding coping effectiveness among young athletes. Firstly, there is a difference between qualitative and quantitative studies, with the former having the focus in identifying the types of strategies and the stressors, while the latter focus on relating the different factors to each other to see how they impact, with self-report being the best way to obtain this information. Additionally, over the last 15 years, researchers have favoured quantitative measures, with the Coping Self-Efficacy Scale (CSES - Chesney et al., 2006) and Coping Effectiveness Scale (Gottlieb & Rooney, 2004) being the preferred instruments.

The overarching theories that provide a starting point for all these studies are the transactional theoretical perspective of stress and coping proposed by Lazarus and Folkman (1984) and Folkman's (1984) goodness-of-fit model with its division into problem-focused and emotion-focused strategies. When examining how the effectiveness of coping strategies changes depending on the stage of adolescence and the maturity displayed by the athletes, the findings presented by Compas et al. (2001) showing that coping has a multidimensional and complex structure are also repeatedly mentioned.

Apart from these concepts, which fit just about every study in the field, there are remarkable differences between what serves as a theoretical background depending on the aim of the study. When the focus was on mental toughness [code: 8] and its relationship with coping effectiveness, the studies by Clough et al. (2002) and Jones et al. (2002) are used as a theoretical reference. For emotional intelligence [code: 13], the theories proposed by Laborde et al. (2014) are used as the basis for the research. Also, in some cases, it was difficult to identify a specific theoretical background [codes: 4, 11, 12]. In this setting, apart from foundational theories identifying stress and coping, there seems to be a lack of a unifying theory that can serve as the basis for all studies in this area. As each study proposes its own conceptual framework as needed, it is difficult to compare the results of each study.

Taking into consideration the specificity of this topic and the complexity of measuring the actual correlation of the various factors that contribute to the effectiveness of coping with a particular stressor, a theory that focuses specifically on coping effectiveness could help to drive further research into this concept and its impact on athletic performance.

It should also be noted that the number of studies in this area is relatively small. Sixteen studies over a period of more than twenty years represent a limited number of investigations, covering only four interventions. Several studies have argued that acquiring knowledge on this topic at this age could help young athletes achieve a more satisfying career. The fact that only four intervention programmes have been carried out proves that there is indeed a need for further research and intervention in this area. Another relevant point is that this topic has been studied predominantly in three sports, namely golf, football, and rugby. Broadening the range of sports would prove beneficial to the research by providing the opportunity to understand the difference between individual and team sports, or to study sports that, for various reasons, are normally considered more strenuous in terms of mental exertion, such as tennis or gymnastics. Given the small number of interventions conducted in this area, it would also be very important to expand the literature to improve the robustness of the findings. To this end, an intervention programme was developed for the next study and applied to early adolescent football players.

Study 2

Strategies to improve coping effectiveness: an intervention on early adolescent football players.

Abstract

The need for stress management programmes for young athletes has been indicated as an important factor for a healthier and more satisfying experience in sport.

This study examined the effectiveness of a psychological intervention programme to promote coping effectiveness in early adolescent football players.

The participants were 20 male football players aged 10-11 years (M = 10.74, SD = 0.34) who played for a Portuguese Primeira Liga football academy. Five were selected to carry out the programme, while the other 15 served as a control group.

The programme consisted of six sessions, with an additional post intervention session at the end. Questionnaires were used to measure coping effectiveness, life satisfaction, satisfaction with sport performance and perceived stress.

Although not statistically significant, the intervention had a positive effect on the participants. In addition, participants reported that they were more aware of the psychological side of competitive sport and that they applied the coping strategies learned during the intervention in other aspects of their lives, such as school.

Overall, the athletes reported small but still positive outcomes that show the benefits of this type of intervention, which should be considered by organisations and families who want to support adolescent athletes in their practice.

Keywords: coping effectiveness; perceived stress; early adolescent; intervention

Resumo

A gestão do stress em jovens atletas tem sido identificada como um fator crucial para proporcionar uma experiência desportiva mais saudável e satisfatória. Os programas de gestão do stress consistem em intervenções destinadas a promover a eficácia das estratégias de coping em atletas. A investigação do impacto destes programa é de extrema importância para compreender como a gestão do stress pode ser otimizada em benefício dos jovens atletas. Este estudo examinou a eficácia de um programa de intervenção psicológica para promover a eficácia de coping em jogadores de futebol adolescentes. Participaram no estudo vinte jogadores de futebol masculino com idades entre os 10 e os 11 anos (M = 10,74, DP = 0,34) que jogaram numa academia de futebol da Primeira Liga portuguesa. Cinco participantes foram selecionados para realizar o programa, enquanto os outros quinze serviram como grupo de comparação. O programa consistiu em seis sessões, com uma sessão adicional pós-intervenção no final. Foram utilizados questionários para medir a eficácia de coping, satisfação com a vida, satisfação com o desempenho desportivo e stress percebido. Embora não estatisticamente significativa, a intervenção teve um efeito positivo nos participantes. Os participantes relataram que estavam mais conscientes do lado psicológico do desporto competitivo e que aplicaram as estratégias de coping aprendidas durante a intervenção noutros aspetos das suas vidas, nomeadamente na escola. A transferência de competências do campo desportivo para a vida cotidiana destaca a relevância dos programas de gestão do stress no desenvolvimento global dos jovens atletas. De forma geral, os resultados deste estudo indicam que, embora modestos, os atletas relataram benefícios positivos decorrentes da intervenção. Este estudo amplia o conhecimento sobre o coping eficaz em jovens atletas e oferece insights práticos que podem auxiliar treinadores, psicólogos desportivos e outros profissionais a orientar os atletas de maneira mais eficaz.

Keywords: coping effectiveness; perceived stress; early adolescent; intervention

Introduction

The field of sports and athletic contexts involve a high-pressure environment where athletes often deal with stressors that can significantly impact their well-being and performance outcomes. Effectively managing these stressors is crucial for success (Fletcher & Hanton 2003). It can positively affect their mental health as well as influence their overall performance, resilience and career longevity (Fletcher & Sarkar 2012; Lazarus & Folkman 1984). Therefore, there is a growing interest in research and practical applications to develop intervention programmes that enhance athletes coping strategies.

On the role of coping strategies

Coping strategies can help an individual regulate their emotions when facing a challenging situation, which would ultimately improve a person's ability to focus and perform effectively in a stressful situation (Jensen & Wrisberg, 2014). Increasing the number of coping strategies available to an individual help increase coping flexibility, making them more confident to use the most appropriate strategy depending on the situation faced (Duhachek & Kelting, 2009). Coping strategies in sports refer to athletes' cognitive and behavioural efforts to deal with stressors, adversities and challenges they encounter in their sporting endeavours (Nicholls et al., 2009). Researchers have identified coping as being an extremely crucial factor in performance and satisfaction while lacking the ability to cope with stressors can deteriorate the level of the skills required for the execution, which then leads to poor performance even in situations where a positive outcome would normally be expected (Hill et al., 2011).

Coping strategies can be broadly divided into problem-focused coping (efforts to change the stressor itself) and emotion-focused coping (efforts to manage emotional reactions to the stressor) (Lazarus & Folkman, 1984). Athletes often use a combination of these strategies, depending on the nature of the stressor and their individual preferences (Fletcher & Sarkar, 2012).

Intervention Programmes in Sports

Over the years, researchers and sport psychologists have developed and implemented intervention programmes aimed at improving athletes' coping skills. The goal of these interventions is to provide athletes with the skills they need to effectively manage stressors, thereby promoting psychological well-being and optimising performance outcomes. These programmes typically include structured training sessions and workshops in which athletes are

educated about stressors they may encounter and taught strategies, usually either emotion or problem-focused, that can help them manage the different stressors (Kent et al., 2018). Interventions often draw on established psychological theories, such as cognitive behavioural techniques, mindfulness techniques and resilience training (Mahoney et al., 2014).

Evaluating the effectiveness of intervention programmes in sport can be quite complex. Studies in this area often use a range of outcome measures, including self-reported coping strategies, indicators of psychological well-being and performance-related variables. While some interventions have shown promising results in improving athletes' coping skills and psychological resilience (e.g., Gucciardi et al., 2012), others have produced mixed results (e.g., Hanton et al., 2013). The effectiveness of these programmes may be influenced by several factors, including age, gender, sport and the timing of the intervention (Fletcher & Hanton, 2003). In addition, methodological rigour, including the use of control groups and appropriate statistical analyses, plays a critical role in determining the validity of intervention outcomes (Nicholls et al., 2009).

Studies examining the development of coping strategies have generally targeted adult athletes, while adolescence has been less researched. In an intervention conducted with a 16-year-old golfer, Nicholls (2007) included the use of cognitive (e.g., focusing on the game, confidence in one's abilities), behavioural (e.g., maintaining routine) and emotional (breathing exercises) strategies. This led to an increase in the use of effective coping strategies, while ineffective strategies decreased. Reeves et al. (2011) adapted a coping effectiveness training (CET) programme for an intervention for adolescent soccer players (CETASP) aged between 13 and 14 who were part of an English Premier League Soccer Academy. The effects of the CETASP intervention were studied using a single-subject multiple-baseline, across-individual approach. Following a baseline period, the CETASP intervention was gradually introduced (week by week) until it had been implemented by all participants. The sessions were given to each participant individually, and the coping methods taught throughout the intervention sessions comprised both cognitive and behavioural aspects of coping. The results of the coping self-efficacy (CSE) data showed that the intervention had a positive effect on the participants, as it increased the CSE score of all participants. Also, according to participants, the CETASP enhanced coping abilities, confidence in dealing with stressors, and performance. They indicated that having more information and awareness allowed them to apply coping skills more rapidly (Reeves et al. 2011).

More recently, Cupples et al. (2021) applied a stress management intervention to help elite youth rugby players transition to a high-performance environment and manage the sources of

stress associated with this transition. The intervention had a positive impact on the athletes, who used task-based coping strategies more frequently and avoidance-based strategies less frequently.

Given the potential detrimental effects of ineffective stress management, the aim of the present study was to develop and apply a programme to help athletes in early adolescence improve their ability to cope effectively with stress. To evaluate the benefits of this programme, the variables coping effectiveness and perceived stress were examined, as the intervention directly targets these factors, but also performance satisfaction, as this can be influenced by the ability to cope effectively, and finally life satisfaction, as it has been shown that the ability to cope effectively can have an impact on athletes' life satisfaction (Surujlal, J et al., 2013).

Method

Participants

The athletes participating in this study are members of the male academy of a Portuguese football team currently in the Primeira Liga. The club has been long established in the Portuguese top-tier league and has a long tradition of fostering young talent. They participated in 7-a-side football competitions at the time of the intervention.

Of the 20 athletes, five participants were selected through a combination of direct observation and a combination of questionnaires adapted to their age (presented in the next section), which measured the previously mentioned factors: the ability to cope effectively, the level of perceived stress, performance and life satisfaction.

After identifying players with lower scores on these variables, this set of data was matched with observation of players who had shown greater difficulty in coping with stress by being particularly sensitive to various factors such as criticism, poor performance, decisions perceived as unfair. The signs considered more relevant were anger at others, sadness, withdrawal, distraction and signs of nervousness.

At this point, the availability of the athletes and their parents was taken into account: due to their age, they could not travel themselves to the premises of the club where the intervention was to take place. Therefore, an additional screening was carried out to find out who had the possibility to attend the programme of the intervention on a regular basis. The remaining 15 athletes that did not take part in the intervention served as a baseline to analyse the difference in results as the questionnaire was administered before and at the end of the intervention to all the 20 athletes.

Instruments and procedures

At the baseline point of the study, all 20 athletes completed a protocol with the various questionnaires selected for this study to get a comprehensive overview of the athletes' stress levels, coping effectiveness and life and performance satisfaction.

Perceived stress

In order to assess the level of perceived stress, two different tools were used. The Stress Numerical Rating Scale-11 (SNRS-11 – Karvounides et al., 2016) is a single-item tool, which was designed to assess the level of perceived stress in the previous week on a scale from 0 (*no stress*) to 10 (*worst stress possible*). Also, the Portuguese version of the Perceived Stress Scale (PSS 4 – Cohen et al., 1983; Trigo et al., 2010) was used: a four-item inventory that asked participants to rate on a scale of 0 to 4 how "you felt unable to control important tasks in your life".

Performance and life satisfaction

A single-item Likert scale adapted from Pensgaard and Duda (2003), which was designed to assess the level of satisfaction with the player's football performance in the previous week. A single-item tool was used as well for life satisfaction: the Students Life Satisfaction Scale (SLSS5 - Strózik et al., 2016), which is a five-point Likert scale from 0 (*not at all satisfied*) to 5 (*totally satisfied*) was adapted for this questionnaire asking participants to determine how satisfied they were with their lives in the last week.

Coping effectiveness

Finally, the Coping Effectiveness Scale (CE scale; Gottlieb & Rooney, 2004) was included after it had been translated into Portuguese by the author and adapted for the age in question by the author. The instrument was back translated and revised by several researchers with experience in psychological measurement in the sport contexts. It includes seven items in which participants were asked to indicate on a scale of 1 (*strongly disagree*) to 4 (*strongly agree*) how they had dealt with their own problems in the last week.

In addition, the questionnaire also contained socio-demographic questions and questions that helped to determine and characterise their background. The same questionnaire was also

completed after the end of the intervention to assess the change in the different scales for both intervention participants and the control group.

Procedure

After an initial contact with the head of the psychological department of a Portuguese Primeira Liga team, it was agreed that the players could participate in this study. The study was then presented to the players and their parents, and an informed consent was obtained from both parties. After the protocol was completed and evaluated, the five participants were selected and asked, together with their parents, considering their availability and willingness to participate in the intervention programme.

This questionnaire was given to all 20 players of the teams at the beginning of the programme so that the five participants could be selected for the study. The same data collection was carried out at the end of the programme, but two players refused to complete the questionnaire by then, so there were 18 participants in total at the end.

The five selected participants in the intervention were asked to complete a protocol similar to the baseline one, which included the SNRS-11, the Life Satisfaction Scale and the Coping Effectiveness Scale and excluded the PSS-4. After the post intervention session, they filled out the same questionnaire as the control group, which also included the PSS-4.

Following the method outlined by Reynolds-Keefer and Johnson (2011) for questionnaires for children, smileys and colours were used in the scales to adapt them to the age group of the study participants. Happy faces and the colour green were associated with the positive end of the scales while frowning faces and the colour red colour served the other end of the scales.

The protocols and the intervention programme were submitted for approval to the Ethical Commission of the Faculty of Sport of the Universidade do Porto.

Intervention

This intervention was based on the CETASP developed by Nicholls et. al (2009) and it was designed to be carried out in six weekly individual sessions during the football season. The content of the sessions was adapted considering the specific needs of the age group to make it more accessible particularly when dealing with the most complex issues. The sessions were held by the first author. Each session had a different focus in terms of the topics discussed and the coping strategies developed.

Session 1 - Identification of current stressors and coping ability

The goal of this session was to increase participants' self-awareness of stressors and effective coping responses. Furthermore, the goal was for the athletes to gain a better understanding of the effective and unproductive tactics they used in response to their individual stressors. In this sense, initially, the athletes went through an education phase where the idea of stressors and coping were explained, illustrating the possible benefits when specific techniques are applied. The objective was to introduce them to terms and concepts that were relatively new to them in order to have them fully understand the scope of the intervention and fully embrace its purpose. As a homework for this session, the athletes were asked to either watch professional games or pay attention during their own practice and take notes of specific situations where the players faced the same stressors that had been discussed during the session: what happened, how the players reacted and how they would react.

Session 2 - Coping with uncontrollable stressors I

This session was centred on the emotion-focused ways of dealing with the uncontrollable stress coming from unfair decisions faced during games such as an unfavourable decision from the referee or being benched by their trainer. The first part of the session concentrated on assessing the distressing situation and its cognitive consequences. Example of a previous stressful incident were utilised to assess the emotional and physiological impact on the player. A card game was used to place them in an unfavourable playing situation and working on reframing it in order to get the best out of it. The assignment for the week was to consider any unfavourable situation they faced, how it had impacted them and how they dealt with them.

Session 3 - Coping with uncontrollable stressors II

The focus of this session was on criticism coming from any of the people interacting with them during a competitive setting or training (supporters, coaching staff, opponents, and teammates). After assessing how they were influenced by this specific stressor and showing examples of professional athletes, with a specific focus on criticism on social media, they were made familiar with these concepts and how they were dealing with these types of situations.
Moving to the practical part of the session, the activity most indicated for the athlete was applied and, in this case, it was mostly focused on breathing exercises with the objective to

bring awareness and acceptance. More practice on the breathing techniques learned and how it could help them with their daily life was assigned to them as homework.

Session 4 - Coping with controllable stressors I

This session has the objective of working on strategies to deal with controllable events related to physical mistakes such as failing to score a goal or an unsuccessful defensive effort. The first part of the session was focused on the homework assigned and what has been learned by the athlete at this stage about uncontrollable stressors. Going into the first of the two sessions about controllable stressors, it was important to talk about the difference between what is under the control of the athlete and what is not controllable, and why this distinction is important. By using present examples from their own experience and from professional football, situations where a mistake was overcome or sometimes it even led to positive consequences were discussed in order to understand where they stood on the subject. Moving to the practical part of the session, a problem-solving strategy was developed with the objective of improving a specific aspect of the game that they considered needed to be worked on. This was also used for their homework, where they targeted a situation that needed improvement and planned how to train that specific moment.

Session 5 - Coping with controllable stressors II

In this session, the controllable stressors considered were the ones coming from mental errors, where the wrong decision is being made. The focus was on behavioural coping mechanisms and positive thinking/self-talk as a mistake can quickly spiral into negative thoughts. After reviewing the concepts discussed in the previous session, positive thinking and self-talk techniques were discussed. This activity started with selecting four major stressors and reflecting on positive thinking and positive self-talk that could help with this pressure. As homework, they were asked to journal every day until the next session recording something good that had happened to them, why it did and what was their role in the positive outcome of the situation.

Session 6 - Social support

The purpose of this final session was to improve the players' understanding and utilization of social support. The athletes were asked to discuss who are the people closest to them, and who they could rely on in moments of difficulty when feeling stressed, in order to

talk about what was going on and be assisted when dealing with the stress. Players had to list the people in their support network, and then rate how frequently they interacted with each person. Participants were asked to make a distinction between those who gave advice or support and those who offered listening or understanding. This required "fitting" the sort of social support to stressors. Players were urged to communicate with persons in their support network during the week as their homework assignment and were instructed to record in the workbook exercise how they successfully used social support to deal with a stressor over the week.

Post intervention session

A post intervention session was held two to three weeks after the last session in order to sum up the contents discussed and applied during the six sessions, with the goal of checking what has been retained by the athletes and further reinforcing the practices used. This session was designed to help players develop the coping skills they learned during the intervention and to support them in transferring and integrating effective coping strategies into practice. These sessions were participant-led, with the opportunity for examining any elements where individuals needed additional clarification or support.

Analytical strategy

The efficacy of this intervention was analysed through Wilcoxon tests to examine the differences between the baseline and post intervention of the intervention group on the variables in study. Mann-Whitney tests were also performed to test the difference between the intervention and control groups both at the baseline and post intervention session. (Martins, 2011). Additionally, results were also reported session by session using frequency graphs for each participant of the intervention group.

Results

Differences between baseline and post intervention for the intervention Group

As can be seen in Table 1, the Wilcoxon tests revealed no significant difference between session 1 and the post intervention session in terms of coping efficiency, perceived stress (both measured by the SNRS-11 and PSS-4), life satisfaction and subjective performance. However, the mean scores of coping effectiveness, life satisfaction and subjective performance increased slightly, while perceived stress decreased.

Table 1

Differences between Baseline and post intervention *for the Experimental Group*

	Baseline		**Post intervention**			
	M	***SD***	**M**	***SD***	***Z***	***p***
Coping efficacy	21.40	1.14	23.40	2.88	-1.29	.197
Perceived stress (SNRS-11)	2.20	2.28	.80	.84	-1.34	.180
Perceived stress (PSS-4)	4.40	1.52	4.00	2.55	-2.71	.786
Life satisfaction	4.20	.45	4.40	.55	-1.00	.317
Subjective performance	8.20	.45	8.80	.84	-1.34	.180

Differences between the intervention and control groups

Tables 2 and 3 show the results of the Mann-Whitney analyses between the intervention and control groups at the baseline and post intervention. For the purpose of this study, a random sample of five from the total of fifteen participants of the control group was selected to ensure equality between the groups. However, no significant differences were found at baseline and the post intervention session.

Table 2

Differences Between the Intervention and Control Groups at the Baseline

	Intervention (*n* = 5)		***Control Group* (*n* = 5)**			
	M	***SD***	***M***	***SD***	***Z***	***p***
Coping efficacy	21.40	2.88	20.40	2.78	-.21	.833
Perceived stress (SNRS-11)	2.00	1.87	2.20	1.82	-.54	.588
Perceived stress (PSS-4)	4.40	1.52	3,80	2.49	-.98	.329
Life satisfaction	4.20	.48	4.60	.55	-1.23	.221
Subjective performance	8.20	.45	8.80	.84	-1.32	.310

Table 3

Differences Between the Intervention and Control Groups at the post intervention Session

	Intervention (*n* = 5)		***Control Group* (*n* = 5)**			
	M	***SD***	***M***	***SD***	***Z***	***p***
Coping efficacy	23.40	2.88	24.80	2.78	-1.06	.310
Perceived stress (SNRS-11)	.80	.84	.20	.45	-1.32	.189
Perceived stress (PSS-4)	4.00	2.55	2.40	2.30	-96	.338
Life satisfaction	4.40	.55	4.80	.45	-1.23	.221
Subjective performance	8.80	.84	8.40	.55	-.81	.548

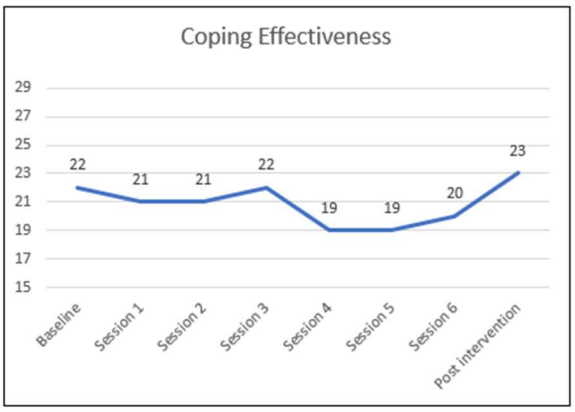
Analysis sessions by session

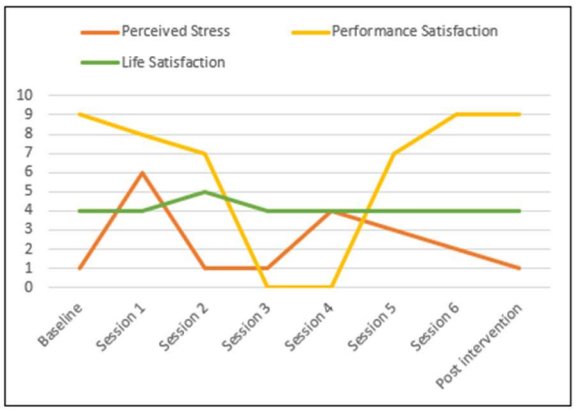
Athlete A

As Figure 1 shows, having scored 22 on the first data collection for the coping effectiveness scale and ended up with 23 on the last data collection, Athlete A showed a slight increase in coping effectiveness that could be considered irrelevant. However, it is important to note that this athlete had suffered a fairly serious injury that prevented him from competing and training with the team, so he had to sit out for over a month. During this time, he had reported in the sessions sadness and impatience caused by the time he had to spend without football training. This is reflected in the results of the Coping Effectiveness Scale for sessions 5 to 7, where his effectiveness level had dropped significantly to 19 to 20 on the scale and then increased again in the last survey after the post intervention session. This is also reflected in the NRS-11 where the stress level increased after session 5 and slowly stabilised until the last data collection. The same trend was observed in the sports performance scale, while life satisfaction remained stable throughout the intervention. As noted by the in figure 1 and by direct observation, athlete A appeared to be the most developed of the five participants in terms of coping skills. However, this seemed to affect him more than the other teammates as he was more sensitive to external factors, suggesting that at this age he may not have developed enough strategies to cope with all the stressors he was exposed to.

Figure 1

Scores obtained for Athlete A throughout the Sessions



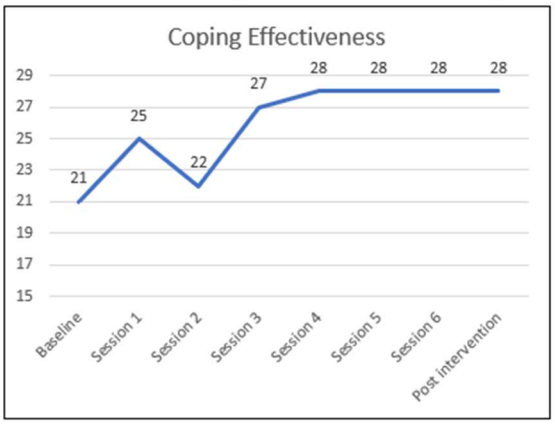


Athlete B

This participant is the one that reported the most significant effects in all scales used for this intervention, as he showed a steady increase in coping effectiveness from 21 at the first test and stabilisation at 28 midways through the intervention. For the other scales, there was a significant coincidence of a decrease in all measures, peaking around session 5. This can be explained by the fact that the team was unlikely to finish first in the league after a few months of struggling for first place and some poor results that affected the athlete. Observations of this athlete showed some tendency towards ineffective coping, arguing with teammates, coaches, rivals and referees, and often being influenced by external events. Over the course of the sessions, he had shown significant improvement and reported that he would actually use the strategies learned in the sessions to become more effective.

Figure 2

Scores obtained for Athlete b throughout the Sessions

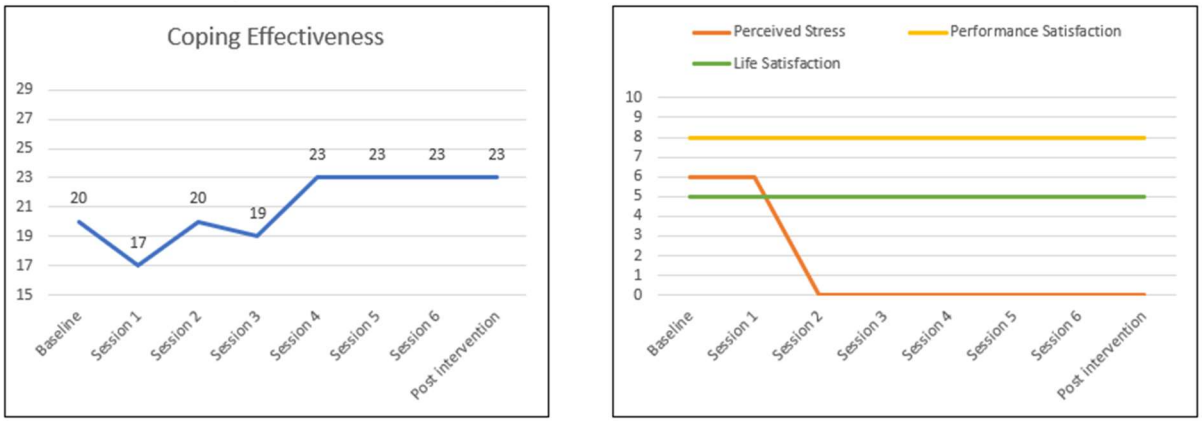


Athlete C

This subject responded well to the intervention by improving his coping effectiveness, which stabilised at 23 on the scale after the fourth session, reflected by his stress level dropping to the lowest point on the NRS-11 after a few sessions. The other two factors remained at the same level throughout the programme, which can be justified given the maturity of the participant, who seemed to be able to separate the different aspects of his life in such a way that one did not affect the others too much.

Figure 3

Scores obtained for Athlete C throughout the Sessions

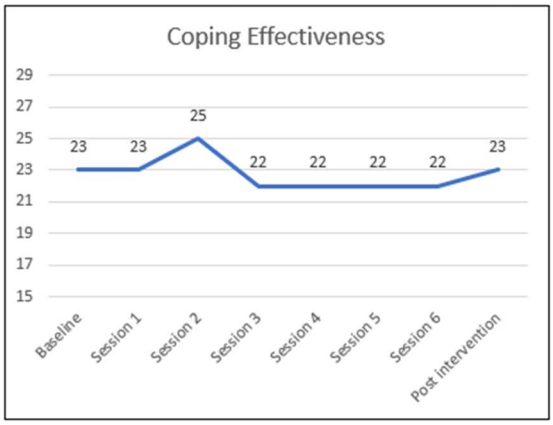


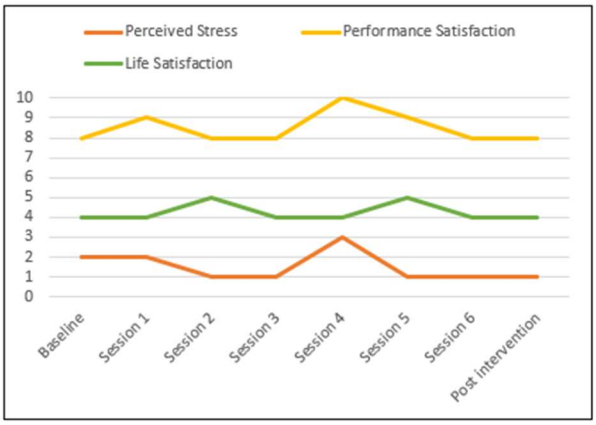
Athlete D

Athlete D showed a stable trend throughout the period of the intervention and did not reveal any real change throughout the duration of the intervention. This could be due to the fact that the sessions with this subject were the most difficult to conduct as they were postponed at the last minute because the parents were unable to take him to the place designated for the intervention, rendering the content of the sessions ineffective. In all other scales, he showed a stable trend, which is another indication of the ineffectiveness of the programme if it is not carried out with the regularity originally intended. However, the athlete had shown great interest in the topics discussed in the sessions. Another possible perspective is that his season was not very successful in terms of performance and playing time, so a stable trend in all variables can be considered a good outcome for his improvement in the ability to cope effectively.

Figure 4

Scores obtained for Athlete D throughout the Sessions



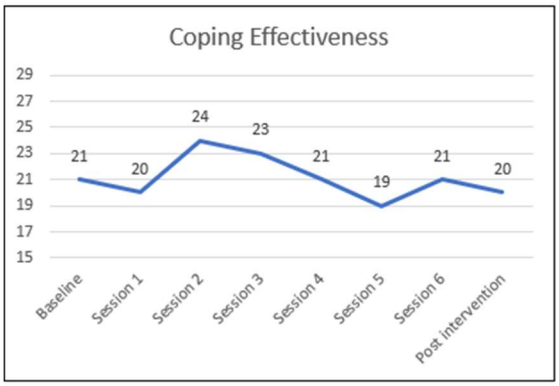


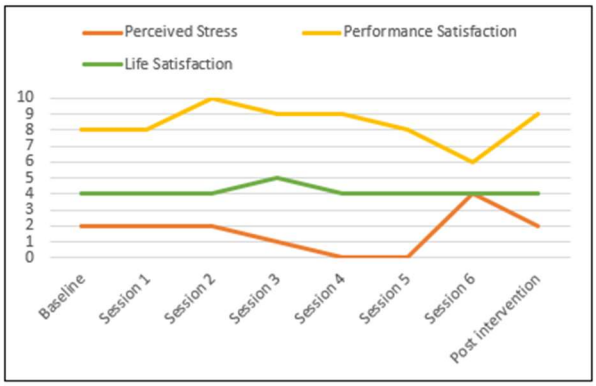
Athlete E

This was the only participant for whom coping effectiveness decreased, albeit by only one point between the first and last test. He reported an increase at the third session, which continued to the fourth session and showed a decreasing trend until the end. Interestingly, this seemed to coincide with a decrease in his perceived athletic performance at this point, which also coincided with an increase in perceived stress at the seventh session. This participant proved resistant to the issues discussed in the sessions, although he reported being satisfied with the work that was being done.

Figure 5

Scores obtained for Athlete E throughout the Sessions





Discussion

The aim of this study was to improve the ability of the athletes to cope with stress effectively by implementing an intervention programme based on the CETASP by Reeves et al. (2011), adapted to the age of the participants. A secondary aim was to see the effects the programme would have on the levels of perceived stress, life and performance satisfaction of

the five football players who participated in the study. Our results showed that all these factors improved to varying degrees, with an overall numerical improvement, but there was no statistical significance when considering the first session and the post intervention session. The results of the Coping Effectiveness scale data partially support the assumption that the intervention would positively affect the level of coping effectiveness, as three athletes scored higher values from baseline to post intervention.

However, the results of the study are consistent with what Reeves et al. (2011) reported about the CETASP intervention as participants indicated being satisfied with the intervention and the development of their coping skills. Additionally, they reported having used the learned strategies frequently during the games and practice.

In terms of data, a direct comparison with the control group shows a lower mean value for the participants, which confirms the selection made, as the participants had shown signs of lacking competence in terms of coping skills.

As for the other three variables measured, both the intervention and control groups showed improvement in the scales for perceived stress (SNRS-11 and PSS-4) and life satisfaction, which was even greater for the control group than that of the intervention group. In terms of satisfaction with the subject's performance, the intervention group had improved, while the control group reported a decrease in satisfaction.

As these factors have not been measured in previous interventions in this area, there is no reference against which to compare the results. One possible explanation for the difference between the two groups is that the participants in the intervention actually confirmed that an intervention was necessary for them as they were struggling more with stress in general. Considering the young age of the sample, another possible interpretation is that the intervention group was exposed to issues that had made them develop more awareness towards the psychological factors that are part of a competitive environment, which ultimately makes them more sensitive to stress.

Consistent with previous research (Hayward et al. 2017; Tamminen, 2010), participants also reported varying their use of different coping strategies according to the appraisal of the situation and not always according to the categories of problem-focused and emotion-focused strategies, which is consistent with the idea that different strategies should be taught in order to have a broader range available and to use them appropriately when needed (Nicholls, 2007; Nicholls & Polman, 2007).

According to the author's observations during the sessions, all participants seemed to have developed an interest in the mental aspects that can influence their performance and

general well-being. They confirmed this impression by reporting that they used the coping skills learned during the games and began to notice the effects of stress also on teammates and opponents as well.

From the discussions held during the sessions, it was clear that participants were using what they had learned in their sport practice, but also in other aspects of their lives, particularly at school. This is consistent with a growing body of literature on the benefits of applying this type of programme in different settings (e.g., Frydenberg et al., 2004; Grey et al., 2009).

One of the main problems in implementing the intervention was that participants were completely dependent on their caretakers to reach the location where the intervention was taking place. This required constant adjustment as the caretakers had different commitments than the participants themselves, which led to some difficulties and interruptions in maintaining the consistency of the programme.

An initial difficulty was the participants' limited knowledge and awareness of psychological concepts as they were just entering puberty and not yet able to fully assess themselves in this area. However, this was quickly overcome after the first few sessions as they easily absorbed the concepts discussed and became more aware of their own mental side.

In terms of future implications, this seems to confirm that, given the complexity of the topic, it is essential to collect mixed data, i.e., quantitative measures together with qualitative ones such as observation during the practice or questionnaires with open-ended responses.
With a population of this age, it would be important to involve the parents as much as possible before the intervention begins so that they understand the importance of consistently following the schedule of the programme in order to achieve the maximum impact.

It would also be beneficial to set up some workshops that allow potential participants to engage and familiarise themselves with the topic that will be discussed and worked on during the intervention. This may lead to a smoother transition at the beginning of the programme. Also considering the young age, it would make sense to perform a longitudinal analysis with participants along the years analyse what the actual impact of the learnings was on the long term.

It would also be beneficial for research to have longer interventions that would span the entire season, for sports where championships are held and for other sports that go through the different phases leading up to the main events, if applicable. A more diverse perspective and a broader view of this phenomenon would allow us to further observe and analyse the effects of stress and how to effectively cope with it.

General conclusions

The main purpose of this research was to explore the topic of coping effectiveness in sport during adolescence. In order to understand the implications of this topic, this dissertation was divided into two studies that could cover different aspects. The objective of the first study was to examine how this topic has been discussed and studied in the scientific literature over the last twenty years. Only sixteen papers that met the previously selected criteria emerged from this study. This confirms that the topic of coping effectiveness in young athletes has not been studied to the extent commensurate with its importance deserves and that further research is needed in this area. The lack of a range of theories was also confirmed by the literature collected in this study. Having something that can be used as a reference might encourage researchers to investigate this topic further.

Regarding the tools used, there is a division between qualitative and quantitative methods in data collection. However, it seems advisable to use a combination of both, which gives a broader view of what is happening, as a complex topic like coping effectiveness can be influenced by several factors such as maturity, age, emotional intelligence and mental toughness. For future studies, it is advisable to use a combination of both, as it has been shown that coping effectiveness is difficult to separate from other factors, so a broader contextualisation can help to understand the data. Also, a mixture of coping strategies that can then be used depending on the athlete's assessment of the moment seems to be the best solution to improve coping effectiveness.

Considering all these points, the second study involved an intervention with five early adolescent football players. The programme was designed to help them learn new strategies that would help them cope better with their problems, which would eventually translate into their performance and life satisfaction. Based on the CETASP intervention developed by Reeves et al. (2011), this intervention confirmed the impact that what participants learned during the sessions had on them. Although the results were not statistically significant, participants confirmed the positive effect the intervention had on them and how satisfied they were with the experience. They also reported using the learned strategies several times during the games and training, but there was no correlation between controllable stressors and problem-focused strategies, uncontrollable stressors, and emotion-focused strategies, as they reported not following these categories when using one strategy instead of another.

Very important is the fact that the participants also applied what they learned in other areas of their lives, e.g., in school before and during an exam.

This confirms the relevance of learning these strategies and applying them correctly at an early stage in their lives, which can have a positive impact on them in the short and long term. One aspect that should be further explored in the future is to observe the effects of such an intervention over the years, as learning how to deal with the mental side of competing in sport can help these athletes to set themselves apart in the future.

One limitation of this intervention and the literature on coping effectiveness so far is the heavy dependence on data collected retrospectively, with months passing between coping and remembering in some cases. Over time, memories decay and may be distorted depending on outcomes or associated emotions. Different tools should be created and used.

Another point to consider is the individual nature of experiencing stress and coping. Different individuals can evaluate the same situation differently and cope with it in different ways.

Finally, I would like to point out that there is a need for further research in an area that has a very large impact on the performance and general well-being of athletes, which should not be overlooked.

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