Mini-Review/Systematic Review

The paradox of mental health versus mental disease in elite athletes: a scoping review

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Abstract - Aim: To analyze the concepts of mental health and illness as well as the instruments used to measure them in the elite athlete. **Methods:** The scoping review was conducted using PubMed, SPORTDiscus, PsycINFO, and Scielo. The keywords "Mental Health" AND "Sport" AND "Athlete" were used to find studies in peer-reviewed scientific journals published in English, Spanish, and Portuguese. Studies went through four stages of analysis according to PRISMA guidelines. A total of 179 records were included in this review. **Results:** Recent studies suggest that health and illness should not be recognized as deviations from the norm, but as a changing construct, varying on a continuum, where, at one extreme, we have health; and, at the other, we have illness even coexisting in an orthogonal way. Between the two extremes, there are degrees of psychological well-being and distress, leading from reduced functioning to effective functioning. This indicates the need for psychological support for both the maintenance and enhancement of mental health. An alarming result was that, although most of the studies investigated mental health, they used primarily instruments focused on illness. This new perspective of health-illness brings the need for the development of new instruments that encompass protective factors and symptom screening. **Conclusions:** We reinforce the need for a paradigm shift in relation to the mental health of elite athletes understanding it as a changing construct that should be constantly improved and/or maintained. This change led to the need for broader assessment instruments that encompass protective factors and illness symptoms.

Keywords: sport, mental health, psychology, athlete.

Introduction

Health, mental illness (mental disorders) and their related factors have received increasing attention in the scientific literature and, more recently, have been investigated in the context of elite sport[1-10]. The concern with the psychological aspects reflects the increasing interest in most positive experiences for sport practitioners as well as the potential benefits of mental health for sports performance. Therefore, there is a need to assess the aspects related to health and/or mental illness (mental disorder) in elite athletes, providing important information to sport scientists and psychologists.

Several reviews (narrative, systematic, meta-analysis, and integrative) have been conducted so far, presenting an overview of the international literature on the topics related to mental health or illness in elite athletes, such as mental health awareness[11-13], barriers to seeking help[14], stigma[15], mental health services[16], common mental disorders (depression, anxiety, sleep disorder, and alcohol use, together)[2], anxiety[7], depression[5,17-19], suicide[20], eating disorders[21], sleep disorders[22], bipolar and psychotic disorder[23], as well as consensus assessment reports among researchers[3,4,9].

Based on these reviews, it is noted that, during the last half-century, psychology studies have focused on mental illness (disorder). Their focus was on the support for people with disorders, neglecting positive aspects of human functioning and perpetuating the stigma towards the field[24], especially in elite sport[11,25-27]. Understanding the mental health of athletes can elucidate the underpinnings of their motivation to engage in sports[28]. A broader and deeper approach could clarify that mental health or mental illness (disorder) are sides of the same coin, and the presence of one does not imply the absence of the other[25,26,29-34]. The traditional dualistic view of mental health versus mental illness may be hiding the reality about the issue and, consequently, perpetuating over-

estimations and stigmas in the athletes and professionals involved in sports training[35]. Overcoming this paradox is important for constant monitoring of the athlete, promoting his/her well-being, and improving his/her sports performance.

A review of the studies on this topic could clarify the concepts of mental health and illness as well as the instruments that can be used for their assessment. This information potentializes the assessment of psychological aspects in elite athletes integrally, allowing the understanding of the elite athletes' dynamics within the spectrum of health diseases. Accordingly, this study had the objective of analyzing the concepts of health and mental illness (disorders) as well as the instruments that can be used to measure them in the context of elite sport, based on a scoping literature review.

Methods

This study identified, organized, and systematized the studies on the mental health of elite athletes. A scoping review was carried out to map the existing knowledge on the theme and to point out the gaps for future studies[36]. Scoping reviews are seen as a valid approach in circumstances where systematic reviews are unable to meet the objectives. The scoping review allowed the inclusion of a greater variety of study types, providing a more accurate status of the published research and the concept of metal health in elite sport[36]. The scoping review is similar to systematic reviews, following a structured process, aiming at identifying and mapping the available evidence and clarifying the main concepts/definitions in the literature[36,37]. Unlike the systematic review, which has a closed question and compares results of similar studies, the scoping review seeks to understand and discuss the concept, which was appropriated to our case.

In order to perform the data collection, it was adopted the five-stage scoping process proposed by Arksey and O'Malley[37]:

Stage 1: Identification of the research question

Considering the studies, concepts, data collection instruments, themes, and contexts of interest of the research, we formulate a broad research question: what is the concept of health and mental illness, and which instruments have been used for its assessment in elite athletes?

Stage 2: Identification of relevant studies

The following inclusion and exclusion criteria were chosen based on previous review studies on specific mental health topics and after several discussions among the researchers.

Inclusion criteria:

- Research articles published in English, Spanish and Portuguese;
- Articles published in peer-reviewed scientific journals;
- Diverse sources of information, including research with primary data (quantitative and qualitative), secondary data, reviews (systematic, meta-analysis, narrative, integrative, scoping, others), annual consensus reports, case reports, and manuals prepared by authors.

Exclusion criteria:

- Opinion articles;
- Articles from magazines and newspapers,
- Dissertations, theses, end-of-course papers, books,
- Papers presented during conferences,
- Infographics, call notices, standards, comments.

The search strategies and databases were conducted in three steps as described below.

A limited initial search

A limited initial search (August 2019) was performed in the PubMed database to analyze articles that could guide our review. Elite athletes were considered those who compete at the national, international, and Olympic levels professionally, or university students who commit their daily and weekly workload to training to improve performance, focused on obtaining titles in competitions at various levels[4,38]. University-level athletes were considered in this review, but only those who compete in the first division championships of the NCAA (National College American Association), due to the highly competitive level of this segment, constituting a direct passage to the North American professional sport.

Identifying keywords and index terms

The keywords were defined after consulting the standardized terminology in MeSH, using the following descriptors: "sport", "athlete", and "mental health". The PubMed database was used due to its relevance in the health area; SPORT Discuss, due to its relevance in the field of sports and physical activity; and PsycINFO, due to its relevance in the field of psychology, all the priority areas of our theme. For the search strategy in all databases, the following terms were used: "Saúde Mental" AND "Esporte" AND "Atleta"; "Mental Health" AND Sport AND Athlete; "Salud Mental" AND "Deporte" AND "Atleta". The Boolean term AND was used to extract relevant studies. Our review took place between October 12, 2019, and December 31, 2019. We did not use the year of publication as an inclusion or exclusion criterion.

Additional search for references and citations

An additional search was performed in the reference list of the selected articles. These new findings went through the same selection analysis process.

Stage 3: Study selection

The selection of the studies was performed in steps. First, all titles, abstracts, and keywords were screened by

the first researcher (ACC), who removed duplicate studies. Subsequently, all abstracts were independently reviewed by three researchers, in order to assess their eligibility. The information (title, abstract, and keywords) of the articles was tabulated in a spreadsheet and analyzed according to the pre-established criteria. The articles selected for the third stage of analysis were read in their entirety. Disagreements proceeded to a fourth step, which was resolved through discussion among the researchers, debating all items in the articles.

All these steps followed a systematic search process using the PRISMA protocol (Preferred Reporting Items for Systematic Review and Meta-Analyses: The PRISMA Statement)[39] (Figure 1).

Inclusion criteria

Studies needed to include at least one outcome measure categorized as related to mental health attitudes (stigma, prejudice); mental health knowledge (recognition of disorders and symptoms); behavior in relation to mental health (intended or actual search for help); specific mental health (covering the disorders themselves, that is, anxiety, depressive symptoms, among others); well-being outcomes (subjective/psychological well-being domains, satisfaction with life, positive focus on mental health, selves - self-esteem and self-confidence, resilience, coping strategies); systematic reviews and/or meta-analyses; and consensus report among researchers.

Exclusion criteria

Studies with college athletes were discarded, unless they represent national teams; studies that do not use instruments for testing mental health; studies that focused on injuries and illnesses, but without delving into the relationship with mental health; studies involving religiosity and spirituality; studies in other languages; studies that interpreted sport as physical exercise; studies on instrument assessment; studies focusing on mental strength; studies related to paralympic sport and amateur sport.

Stage 4: Mapping the data

Extracting the results

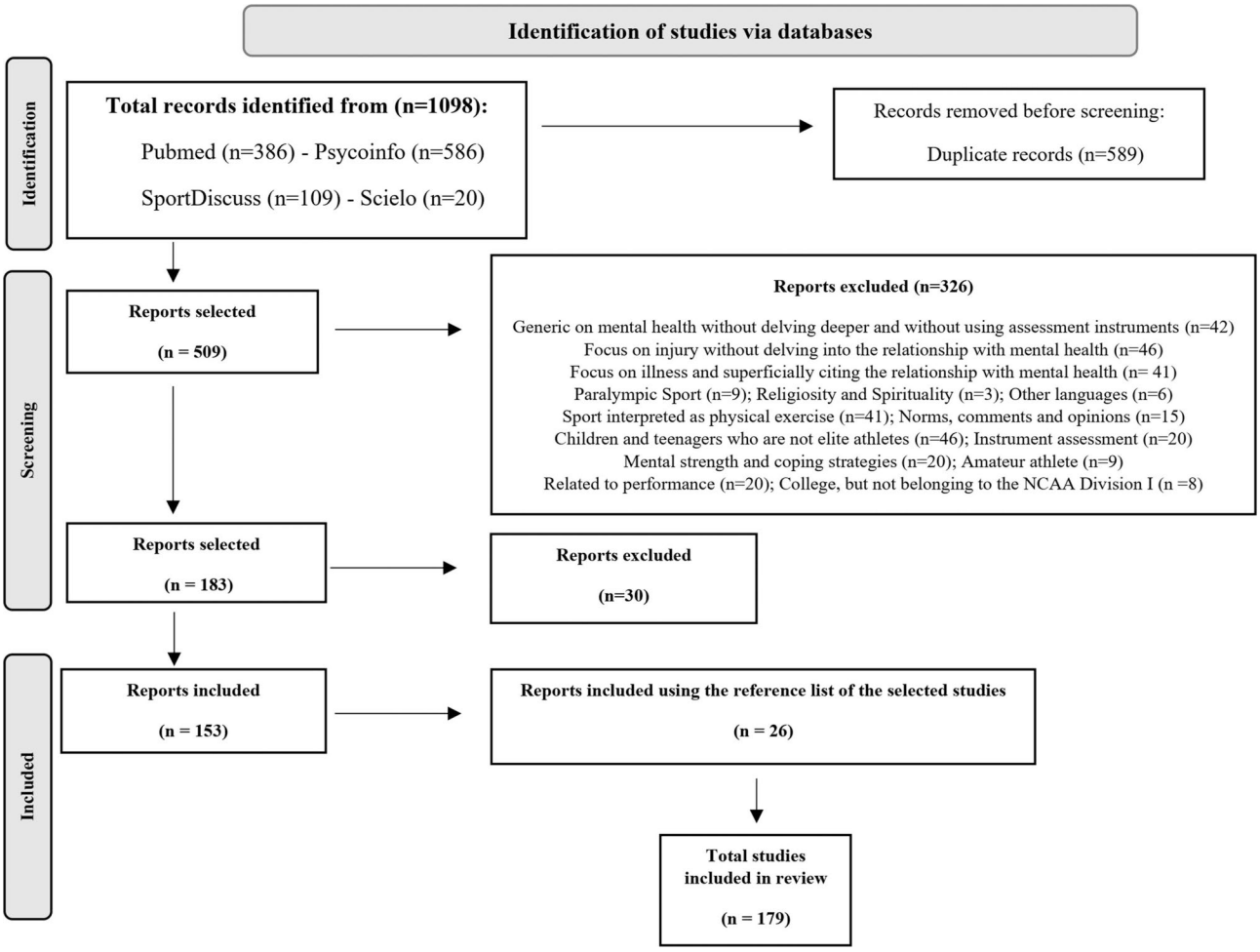

Figure 1 - PRISMA flowchart regarding the accomplishment of the work.

The selected articles were divided into categories in a spreadsheet, also based on the inclusion criteria, in order to obtain a better analysis of the studies, which are:

a) name of the article
b) year of publication
c) journal
d) names of the authors
e) country of the authors
f) study objective
g) level of athlete and competition (national, international/Olympic, university)
h) type of research conducted: primary data (quantitative, qualitative, mixed), secondary data, reviews (narrative, systematic, scoping, meta-analysis, others), consensus reports, case reports
i) disorders or main theme of the study
j) instruments used for data collection
k) type of sport
l) type of sample
m) sample size
n) gender
n) if there was a comparison between athletes and non-athletes or former athletes
p) main results and considerations

Stage 5: Grouping, summarizing, and reporting the results

The methods employed in the protocol designed by Arksey and O'Malley[37] allowed us to analyze the knowledge on this broad topic as:

A. Evidence and the key concepts on health versus mental illness (mental disorder).
B. Discussion and reflection on the mental health of elite athletes.
C. Analysis of the instruments used to assess mental health in elite athletes.
D. Research gaps in the existing literature on mental health versus mental illness.

Results and discussion

Figure 1 summarizes the search process and the 179 articles included in this review. Of these, 68 used quantitative methods to investigate the mental health of elite athletes, measuring the level and quality of mental health. Just a few studies (27%) investigated topics such as the search for help, service for mental health care, awareness of mental health aspects, and analysis of the level of stigma. The main findings of this review are discussed below.

The term "mental health" is frequently used in various media and situations, such as legislation, government policies, manuals, scientific papers, and books, among others. Even though it is a common term, there is no clear and fully defined consensus on its meaning. There is a contrast between theoretical models of mental health and mental illness, especially because the analysis of illness is privileged over health, but the health-illness dyad is multidimensional[29-34]. The World Health Organization[40] disseminates the concept of mental health in its reports, which is understood as: a state of well-being in which the individual realizes his/her own capabilities, being able to manage the normal stresses of life productively, bearing fruits, and contributing to society. Therefore, mental health cannot be understood only through the pathophysiological measurements of the level of illness (disorder).

Illness is a concept, elaborated based on data from phenomena that have been observed over time, related to distress[29,30]. Even subclinical levels of psychological distress symptoms, referring to psychological problems that do not fully meet the criteria for clinical diagnosis of a mental disorder, have a negative impact on athlete functioning[25,26,41,42]. Commonly, health is perceived as an ideal, and disease as a problem that needs to be located, described, measured, and solved. There is a distinction between the biological and cultural dimensions of disease in two categories: pathology and infirmity. Pathology involves the malfunctioning or maladaptation of biological and psychological processes in the individual in relation to the environment[29,30]. Infirmity refers to our way of perceiving, thinking, expressing, and dealing with the process of illness, being prior to the disease and strongly influenced by culture, representing personal and interpersonal reactions[29,30].

Inadequate mental health is associated with increased performance impairment and disability[31,32]. In turn, mental illness (mental disorder), combined with low levels of mental health, is associated with greater impairment in athlete performance[43,44]. Early diagnosis of mental disorder symptoms, as well as their appropriate treatment, could optimize sports performance and quality of life[2]. In addition to the early diagnosis, protective aspects of mental health, such as the selves (self-esteem, self-concept, among others), coping strategies, resilience, quality of life, and social aspects, could also positively impact the athlete's performance[26,31].

It is interesting to point out that, even though the studies sought to analyze the mental health of athletes, the investigations primarily contemplated the assessment of mental disorders (focus on the disease), such as depression, anxiety, eating disorders, sleep disorders, use of alcohol and other drugs, anguish, suicide, bipolar and psychotic disorders, sexual, physical and psychological violence, obsessive-compulsive disorder, among others, using isolated instruments that prioritized the knowledge of symptoms. In this context, health and illness could be seen not as a deviation from the norm, but as a changing construct, varying in a continuum, where, at one extreme, we have health; and, at the other, we have illness even coexisting in an orthogonal way[29-34]. Between the two extremes, there are degrees of psychological well-being

and distress, ranging from reduced functioning to effective functioning[25,26,31].

While participation in sports has many benefits, the stressful nature of competitions can cause, increase or expose the athlete to psychological problems. This fact is complex to be analyzed because certain personality traits may improve athletic success and also be associated with mental health disorders[9]. Thus, there should be no precise limit between health and illness, but a reciprocal relationship between them. The same factors that allow human beings to live can cause diseases, because what is considered normal in one individual may not be in another, and there should be no rigidity in the health-disease or normal-pathological relationship[29,30].

In this understanding of a continuum, the status of the elite athletes considered high functioning, whose psychological state does not interfere with daily activities, is at one extreme; and the athletes considered low functioning, whose psychological states consist of a variety of problematic cognitive, emotional or behavioral characteristics, often referred to as mental illness, is at the other extreme; and, in between these extremes, it is possible to find athletes functioning in a complex relationship between performance and mental disorder symptoms[26,45]. Therefore, the absence of mental health does not imply the presence of mental illness, and the presence of mental illness does not imply the absence of mental health, particularly in the elite athlete[25,26,31,46-49]. However, mental health research in elite athletes predominantly focuses on analyzing prevalence rates of mental illness (disorder) by virtue of a clinical score[25,47,50].

This position should be reviewed because the relationship between sport and mental illness can occur in three ways, as follows: 1) sport can cause or worsen pre-existing mental illness in the athlete; 2) the psychiatric symptoms may somehow attract him/her to sport or some type of sport, perhaps as a way of coping with the symptoms, or because the symptoms are somehow adaptable and accepted in the sports environment; 3) there may be no obvious relationship between sport and the mental illness in the athlete[12]. Thus, strategies designed to ameliorate distressing symptoms may not necessarily be the same with regard to flourishing the mental health of athletes. In other words, it is possible to organize models such as athlete considered well-adjusted, and with maximum performance (high mental health, low mental illness); symptomatic but satisfied athlete, who would present a subsyndromic illness (high mental health, high mental illness); ambivalent athlete (low mental health, low mental illness); vulnerable athlete (low mental health, high mental illness)[44]. Accordingly, all these athletes can benefit from different interventions in mental health services[26,31,48,49].

Mental health is seen as a resource for a successful career, while mental illness (mental disorder) is considered a barrier to facing situations and, frequently, a reason for the premature retirement of the athletes[26]. Developing the ability to cope with mental disorder symptoms, and stressful and conflicting situations, through improving mental health is important, and it becomes a cycle, as athletes with stronger positive coping skills had more favorable attitudes towards seeking psychological help[27].

Just as there are challenges associated with diagnosing mental illness, there are also challenges in assessing mental health[31]. Appropriate instruments for facilitating this assessment are still needed, particularly in sports, showing that the presence of mental illness (mental disorder) does not automatically imply low levels of well-being[44]. In general, there is little consensus on the best way to assess the mental health of elite athletes, with little systematic progress in promoting their mental health[25]. Recently, the International Olympic Committee convened several researchers to analyze the topic of the mental health of elite athletes[4]. Based on this meeting, ideas emerged for the development of an instrument that analyses the mental health of elite athletes[3]. Despite the great contribution brought by the authors, it is noted that the focus continues to be on the analysis of the mental disorder symptoms (focus on the disease), without presenting instruments that make a counterpoint and analyze protective factors for the development of mental health.

Among the quantitative studies found in our scoping review (n = 68, 100%), most of them (n = 50, 73%) was designed to assess the quality of mental health, using instruments focused only on screening for mental disorder symptoms. The most researched themes and the most used instruments in data collection are anguish, with priority use of the Distress Screener (4DSQ); depression, where the Center for Epidemiological Scale - Depression (CES-D) and Patient Health Questionnaire - 9 (PHQ-9) are the most used; anxiety, mainly using the Generalized Anxiety Disorder 7 Scale (GAD-7); sleep disorder, with the Patient, Reported Outcomes Measurement Information System (PROMIS) being the most used instrument; alcohol use, with the Alcohol Use Disorders Identification Test (AUDIT-C) as the main instrument for analysis; eating disorder, where several studies used a wide range of instruments, such as SCOFF Questionnaire (Sick Control One stone Fat Food) and Eating Disorder Examination - Questionnaire (EDE-Q), followed by Drive for Thinness (DFT) and Eating Disorder Inventory- 2 (EDI-II).

Of these 50 quantitative studies, only 7 used other instruments to assess operant or protective aspects of mental health, such as self-esteem, resilience, satisfaction with life, quality of life, mental health, and social aspects. In these studies, one can reflect if the positive results in the instruments of self-esteem, motivation, resilience, quality of life, stress recovery, motivation, the satisfaction of basic needs, analysis of competence, and self-worth, among others, indicate good levels of mental health[28,44,51-54].

Therefore, the construction and validation of an instrument that assesses the disease (mental disorder), as well as operative or protective aspects of mental health, could provide a broader and more integrated vision of the mental health of elite athletes.

Only one study with elite athletes proposed to directly analyze mental health, using a mental health continuum form for adults: Mental Health Continuum (MHC-SF)[44]. The short form of the Mental Health Continuum (MHC-SF) is derived from the long-form (MHC-LF) and assesses emotional, psychological, and social well-being. The internal consistency reliability estimates for each of these three sets of measures were all high (> 0.80)[32]. Its use as a measure of positive global mental health was first introduced by Keyes[31] and summarized in his 2007 study. The MHC-SF consists of 14 items that represent the definition of the construct for each facet of well-being (3 for emotional well-being, 6 for psychological well-being, and 5 for social well-being). The objective of the instrument is to measure how often participants experienced each symptom of positive mental health, and thus provide a standard for categorizing their levels. In order to be diagnosed with flourishing mental health, individuals must experience "every day" or "almost every day" at least one of three signs of hedonic well-being and at least six of eleven signs of positive functioning during the previous month.

The instrument showed excellent internal consistency (> 0.80) and discriminant validity in teenagers, college students, and adults in the United States, the Netherlands, and South Africa[41,55-60]. The test-retest reliability of the MHC-SF instrument over three successive 3-month periods averaged 0.68, and the 9-month test-retest was 0.65. However, this instrument was not designed for elite sports, but the person in his/her everyday life. Another factor is that, even if it is considered that the assessment of mental health should be based on the assessment of mental illness (mental disorder) and its respective instruments, these instruments are not oriented to the reality of the elite athlete, but to the general population, which does not count in its daily life with the specific nuances of competitive high-performance sports.

Conclusions

Based on the extensive literature review conducted in our study, health and illness should not be seen as deviations from the norm, but as a changing construct, varying on a *continuum*, where, at one extreme, we have health; and, at the other, we have illness even coexisting in an orthogonal way. Between the two extremes, there are degrees of psychological well-being and distress, leading from reduced functioning to effective functioning. This change in outlook indicates the need for psychological support for both the maintenance and enhancement of mental health. In addition, this new perspective brings the need for the joint use of instruments that encompass protective factors and symptom screening.

When analyzing the studies on the mental health of elite athletes, we found that studies primarily use only instruments to assess mental disorder symptoms. This review indicates the need for the construction and validation of specific instruments capable of assessing mental health in the reality of competitive high-performance sports, because the instruments used are, in their majority, the same as those used for the reality of the general population. The instruments should also consider the assessment symptoms of illness (mental disorder) as well as protective factors. Therefore, it may also be interesting to think about adapting the Mental Health Continuum (MHC-SF) to the reality of the sports context of elite athletes.

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